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## Association of American Medical Colleges

Volume 4

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**JOURNAL**  
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**Teaching of Physiology\***

MARTIN H. FISCHER

Professor of Physiology, University of Cincinnati

I know of no way in which the requirements for the teaching of physiology in the medical schools can be further improved. We now drill specified students a specified number of hours on specified subjects. They do not come but are sent to us and leave us as quickly as the law allows since other subjects press them. The situation has the moral qualities and goodness common to all penitentiaries and since this is what a half dozen reform organizations have been working for for thirty years, they ought to be content.

**Why Teach Physiology?**

Why retain physiology in the medical curriculum at all? I could adduce strong arguments for its elimination. Men who like myself live by it would of course, object but a stronger argument for its retention exists in history. Physiology and medicine are two historically linked mental concepts and no man will succeed permanently in putting them asunder. Except for anatomy, physiology is the first of the special disciplines in medicine and even those fractions of anatomy which have best lived are not merely morphology but physiology.

What circumstance and what manner of men made the new field?

I stress the fact that it grew out of the needs of medicine, that physicians created it and that the subject became a specialty and the men specialists only because the old physiology led to sounder principles of medicine and the physiologists themselves were doctors plus. The special lump of physiology developed, in time, lumps more diverse. In the last century, for example, physiology sprouted psychology, pharmacology and physiological chemistry. The last has now turned into biochemistry, has rechristened a portion of itself as physical chemistry and might have developed a colloid-chemical wart, had I not done all I could to burn it off. In reality it is hard to do justice to the branching tree. Psychology now has twigs which are inductive or deductive, material or immaterial, divine or business; the old metabolism may

\*Read at the Thirty-ninth Annual Meeting of the Association held in Indianapolis, Oct. 29-31, 1928.

rediscover itself in an attachment to the surgical amphitheatre, in animal and vegetable nutrition and in domestic science; while the chapter on the physiology of the blood loses itself in pHs, CHs, serology and anaphylactic shock.

### Progress or Attenuation

Three things stand out of this recitation which are serious. The first is the fact that too much of what has looked like progress in physiology is mere attenuation of the subject with an accompanying loss of foothold. A second is that loss of this foothold makes the subject lose its fundamental importance for medicine. The third is that the substitution of pieces for the whole has made possible the substitution of an ever increasing number of non-medically trained scientists in the medical school.

The physiology which interests us developed out of and with medicine and out of medical men. It made its place for itself because it had much to give to medicine. And it taught its truths through the mouths of men who knew medicine. I leave you to draw your own conclusions regarding a road to reform in this day.

### Physiology and the Curriculum

I return to the fundamental proposition of the curriculum in physiology. I think that it has been fooled with, enough. I find it easy to teach the fundamentals of my subject under the conditions imposed, and since I feel that I have discharged the obligations of my office when I can certify that those who have sat under me will make safe practitioners of medicine, so far as my subject is concerned, I rest. It is all that ninety or more per cent of any class wish, and since we live by majorities, even in our institutions of higher learning, I do not force the truffles of university education down unwilling throats.

For this reason I bid the 90 per cent adieu as soon as the course set for me is finished and concentrate on the 10 per cent, or less, who may wish to go on. These are offered lectures, conferences and separate space for experimental inquiry. Lest they mistake the purpose of such education, I offer no credits and no tangible rewards. I will not say that this extra-curricular work is popular or that it meets with success. I try to teach physiology from a medical point of view, which merely means that I illustrate stereotropism, for example, by the growth of a cut nerve down its sheath instead of by a cockroach climbing a crack. This permits the clinicians to tell me to stick to my subject; while the students whom I am trying to enthuse with the hypotheses of the constitution of living matter, since I believe them to underlie all progress in medicine, are likely to see in me only another professor gone wrong.

### Research and Practice

Nevertheless, I consider these uncharted ventures in physiological education to be the only worth-while things I do for my College. They constitute to some men's mind "research" and while I am sick of the blab which surrounds that footless word, I must bring up some sort of justification for this aspect of my "teaching" even though it is beyond the touch of any uplift bringing standardization group.

There is no form of human activity which day in and day out so requires the research type of mind as medical practice. The unknown problem of the individual sick man, the discipline of observing him and noting the facts in his case, their correlation into a hypothesis of what may be the matter, the application of the tests of time and therapeutics to prove or disprove that hypothesis, the lessons learned inside by the physician in the performance of these activities—what else is there to "research?"

### Teach Less Fact and More Method

What does the physiology of the medical school today contribute to the training of such a man? The formal course, I think, not much; nor will any further juggling of hours or subjects within it help. For, fundamentally, all required education is set education and has for its purpose and can bring no better end than the inculcation of the approved prejudices. But success here assuredly stifles the orderly sequence of observation, deduction, reason and action which we look for in the physician. Unless physiology like any other of the sciences basic to medicine will teach less fact and more method, it might as well be deleted from the catalogue.

Can anything be done to help the situation? Not, I think, without large vision. The student of medicine needs not more external but more internal discipline. The law, institutions and committees may contribute to the former; only responsibility, contact with the living world and the good opinion of his fellows affect the latter. Still more formalized—I nearly said formalized—education will not help. The set premedical course and now the compulsory fifth year, consisting entirely of clinical subjects fried crisp, yield us only older and deader babies, not better ones. Within the four year medical course the overfilled curriculum, all on specified subjects, never allows a fish to come up for air. The argument that 90 per cent would be in the air all the time if not driven from without fails of its objective. If we are not developing men possessed of an internal drive, our labors are in vain anyway. And for the 10 per cent air is absolutely necessary. This is the number through which in the end the total profession will be known. And we might try the experiment of placing our major efforts on these instead of the lower 10 per cent of floppers.

### University Mindedness

I would reward my 10 per cent by treating them as university minded men and so allowing them free choice of any subject in the medical school for their major discipline. Very few, of course, would choose physiology. But I do not object to that, for the life cycle of a bacterium is as good physiology as the unipolar stimulation of a muscle, and a diabetic in the clinic will reduce Fehling's solution as handsomely as a punctured rabbit. Wherefore I say, that the dean in whom is reposed, as it should be, the total interest of the medical student should be the judge. Minimum requirements of all men to satisfy the law and maximum voluntary additions of self selected subjects by the self selected. If tally must be kept of what they do, then I would say that extra hours in medicine or pediatrics or bacteriology might be counted for physiology, or, if right in the judgment of a dean, the other way about.

### Departments in Medical School

And as to the total of subject departments in the medical school, history might be consulted. We are operating at present on some twenty half-dead, half-alive designations in all medical schools. It should be remembered that what are today departments or subjects were once men. And their labors were not those of bookkeeping or directorship but of personal productivity in a field. In the last century the word physiology was more nearly synonymous with Haller, physiological chemistry with Liebig and Hoppe-Seyler, pharmacology with Schmiedeberg, psychology with Wundt, bacteriology with Pasteur, hygiene with Koch, pathology with Virchow, surgery with Lister, nervous diseases with Bell and Jackson, syphilis with Hutchinson, mental disease with Kraepelin than with any other types of words that I can think of. If such men, through their ways of thought, became so important to medicine that departments arose about them, then why do we not close these when they have died or left no successors; or the other way about, why does not the possession of the right man permit of the creation of a new department in any medical school? And why, in the major subjects only one professor and one department when the field covered could easily consume the energies and interests of three?

### Delegate More Power to the Dean

I believe that deans should have the power to create and annihilate departments and use or decline for credit toward the medical degree as much or as little of the work out of any such department as they choose. If they make no mistakes, they will create great faculties and produce great students; if they are incompetent, they will merely

die. They should have no difficulty in protecting a good teacher. For such teachers are picked by the students, if given free choice. A dean's genius will lie in discovering and protecting great teachers whom students and a public may not be competent to judge. But deans will be slow in exercising such liberties as long as the internal government of their medical college is not made more largely autonomous.

It seems to me that the first function of an association like this should be—and I believe it intends—to guarantee such autonomy. When it is again established, something of the university spirit which makes men the product of men instead of the rah-rah boys of an institution will return to our colleges of medicine. Instead of so much or more uniformity we need more individuality and more internal courage in our medical schools. Through standardization, associations like this have brought individual departments and whole medical schools out of the gutters upon the sidewalks of respectability. What seems imminent is that in the levelling process eagles will be shot out of the air because, forsooth, some, in their flight, soil housetops.

### Discussion

DR. ARTHUR D. HIRSCHFELDER, University of Minnesota: I should like to agree with many of the things Dr. Fischer has said, and I would, perhaps, like to mention a couple of the experiments in curriculum and didactics that we have conducted for the last fourteen years at Minnesota, which are more or less along the lines that Dr. Fischer has suggested, but which represents such modification.

About fourteen years ago, we introduced a system of electives like the system in vogue at Johns Hopkins, in which an integral part of the curriculum, about one-eighth of the total number of prescribed hours, were devoted to elective courses. The prescribed curriculum has in the last few years increased from 4,000 hours up to about 5,000, so that the per cent is a little less. It is perhaps about ten per cent of elective work. That elective work can be taken in any subject or in any subjects that the student desires.

I should like to speak about the Department of Pharmacology, because that is part that I have had charge of, but the same thing applies in bacteriology and physiology and physiological chemistry and other subjects.

We have two types of courses, the prescribed course in which the experiments are made as simple and as fool-proof as possible so the students who have to do them have a batting average of about eighty or ninety per cent of successful experiments in their routine work. Then in the elective work a student must take about 500 hours in all of the electives he takes, and perhaps he may take from 66 to twice that number of hours in just pharmacology. That work is all given on minor problems, in many cases minor researches, if I may use the word with apologies to Dr. Fischer, things at any rate that are small units in which the students can accomplish something in the time they take. There they work out the technique, cover the literature and write up the results in the form of a paper as nearly as possible of the type that would be fit for publication; so that they get some literary critical ability as well as learning something about putting together of a scientific paper, the development of control methods, the working out of technique and the development of special apparatus and all that kind of thing.

I would just like to say one thing about the results. Those are not the self-selected superior students of the type that come to Dr. Fischer. Some of them are, but a great many are not. A great many of them are from the students at the lower end of the class who require more credits and better grades; and we usually give better grades in elective courses than in the prescribed courses; so there is a certain amount of the vile corruption that Dr. Fischer would properly describe as bribing the student into this kind of work. But the end result of it usually is that the student who in his routine courses has not been well oriented, has not had developed special interests or has had them crushed out, perhaps Dr. Fischer would say by learning too many cut and dried facts, does get interested in the one thing that he is doing. He makes observations which perhaps vary somewhat from some of the observations that have been made by men whose name he has learned to consider authoritative; and he therefore gets a certain amount of self-confidence that he otherwise would not get and a certain amount of self-satisfaction in the feeling that he also can do something, a small job perhaps, that will stand as one small brick in the edifice of science. Very frequently, surprisingly frequently, this man who is down at the lower end of the class, and I can even include the very last tip of the caudal vertebra at the tail end of the class, as a result of this kind of work, begins to see his other subjects in a different light, begins to develop new interest and develops himself usually as a better routine student, but even if not, I have frequently seen him continue to grow during his internship and to develop a subsequent career quite unexpected at the time he was a student. This especially true of those who looked only at the routine grades, but frequently not unexpected to us who knew those men working on one special thing in which they had become, I will say usually in spite of themselves, interested during the course of the elective work.

DR. F. T. VAN BEUREN, JR., Columbia University: I cannot refrain from expressing my thanks to Dr. Fischer for the enjoyment of a paper so pregnant with wisdom and delivered with so much humor, but I do think in self-defense I ought to say that even in that happy state of New York where, as I learned with surprise and delight for the first time yesterday, medical education is entirely unregulated by any foreign bodies, it is difficult to overcome the prejudices of the various departments, and to have one or another department called by a proper name.

We have, however, in a small way, forestalled the suggestion Dr. Fischer made, and the Department of Bacteriology is often called Dr. Gray's department. The Department of Pathology, Dr. Jobbing's department, and so on. We look forward to the time when we may call the Department of Surgery Lister's department.

DR. MARTIN H. FISCHER, University of Cincinnati: In spite of the fact that physiology is my subject, I cannot think of it as synonymous with the whole medical curriculum. I cannot get that serious about it. Other subjects and other disciplines seem to offer just as much when the right minds head such departments. I believe that the students should be given opportunity to enjoy as much of such minds as he wishes. That is why I want him to have the lowest possible amount of required work and the largest amount of choice. He needs to be inspired by men who really know.

To me, medical education offers the finest opportunity of any of the university schools to teach men the relation of man to man, of man to this earth and of man to God. Some medical teachers can do this better than others, wherefore, I want the medical student to be treated as a university man and to be given more inspiration and less of the compulsory lock step

so common now. Professors need to be more than administrative heads of departments.

I am glad to hear deans spoken of so well because I have a genuine admiration for this office, which most professors have not. I do not conceive of deans as mere bookkeepers but think of them as leaders in thought for the entire concept of medical education. That is why I want them not only to have power but to use it. Through moral suasion they must again be the leaders of their professors, as it were, toward this general end which we are all after, the creation of independent and right-thinking units called doctors all over this world.



## Teaching of Elementary Pathology\*

RICHARD S. AUSTIN

Professor of Pathology, University of Cincinnati

Pathology is in some respects a liaison subject in the usual medical school curriculum. The study of pathology is a continuation of the study of gross and microscopic anatomy, as well as of biochemistry and physiology, and serves as a foundation for the study of the clinical subjects. The students come from the so-called fundamental medical subjects, with their general "biological" rather than especially "medical" atmosphere, and in the clinical departments have added an important complicating factor in their studies, the living patient. The elementary course in pathology can therefore serve a most useful function in making this step of the students from the fundamental to the clinical subjects an easy and natural one. Of course, this cannot be done without the aid of the clinical departments. Furthermore, if pathology is to serve such a purpose it is presupposed that the clinical, as well as the pre-clinical, instruction is animated by a genuine scientific outlook. It is, in fact, necessary that students early and continuously appreciate that the medical school curriculum is a unit, one subject cannot be divorced from another, and consequently the same methods of attack are to be employed in meeting the problems of all the subjects.

Closely interwoven with this function of a course in pathology must be the aim and effort of the instructing pathologist to train students in critical analysis and judgment, qualities presumably encouraged in preceding courses and qualities necessary in their clinical work in the school and throughout their professional careers.

To these duties of the teaching pathologist is to be added the direction of the students toward acquiring a knowledge of the principles of pathology, the instruction being guided as far as possible by a spirit of critical investigation, not of dogma. Pathology is very far from being an "exact science."

With this conception of what, in general, should be the background of an elementary course in pathology there remain important problems to be solved in connection with the proportions of the time available to be allotted to the different ways of presenting the subject which seem desirable. Microscopic study, necropsy attendance, presentation of fresh and preserved gross material, lantern and micro-projector demonstration, seminars, oral quizzes, written tests, clinical talks and display of patients, lectures and informal talks, preparation of reports by the stu-

\*Read at the Thirty-ninth Annual Meeting of the Association held in Indianapolis, Oct. 29-31, 1928.



dents—all of these methods of bringing the students into contact with the principles of pathology, and illustrations of those principles, must be assigned their proper places in the course, on their individual merits as to the amount of time they deserve and also in relation to one another. This is always one of the important problems in organizing the teaching of elementary pathology.

At the University of Cincinnati experience has often prompted the reapportioning of the amounts of time devoted to the different methods of presenting the subject of pathology but the general outlines of a definite scheme of instruction have now been maintained for several years. This schedule may not differ radically from those in operation in other departments of pathology, but in certain details there is perhaps sufficient departure from practice elsewhere to justify a brief account of the nature and usefulness of certain exercises.

The time allotted in the curriculum of the College of Medicine at Cincinnati to elementary pathology consists of five mornings a week during half the school year. Four of these mornings the subject of study for the day is introduced by a member of one of the clinical departments who discusses the subject and demonstrates in living patients the clinical manifestations of the pathologic conditions under investigation that day. Most of these clinical exercises are in charge of either the medical or surgical departments, but pediatrics is frequently called upon, and in the latter part of the course, when the diseases of special anatomic systems of the body are being studied, certain of the medical or surgical specialties occasionally take over this introductory talk and demonstration. This first hour of the morning is followed by a short talk by the head of the department of pathology, the microscopic sections for the day being demonstrated to the entire class. The students then spend the next hour and a half in studying the sections, instructors being in attendance for individual consultation. Before continuing the outline of the day's schedule it is worth while to stop here and enumerate a few of the advantages of this scheme of instruction. The students come in contact with pathologic changes and with their manifestations in the living patient at the same time, so the connection between the two is the more evident. The teaching of pathology is distinctly aided by the added interest of the students because of these introductory clinical exercises. The clinician has the advantage of meeting the students when they are being grounded in the fundamental principles of disease. Five years of experience with this correlative schedule has produced no desire for its abandonment on the part of clinicians, pathologists or students.

The last hour of two mornings each week is usually devoted to oral quizzing, the class being divided into groups of about sixteen students. These groups are maintained for attendance at necropsies, the groups

taking turns in attending post-mortem examinations. Sixteen students about the necropsy table can all have an intimate view of what is going on; it has seemed better to arrange it this way than to have the whole class crowding around or sitting in distant amphitheatre seats. Two students assist at each necropsy. There is a requirement that each student before graduation must actually assist at, not simply witness, ten post-mortem examinations. He must fill out a card for each necropsy at which he assists, the card calling for the gross findings (both positive and negative) and anatomical diagnoses. The reverse side of the card provides for the entry of the microscopic diagnoses which the student writes in after study of the microscopic sections under supervision of the instructor who conducted the gross examination. The instructor's signature on each side of the card is necessary before the student is given credit for the necropsy. The students have opportunity outside of, as well as during, class time to meet this requirement. As a matter of fact, many students assist at more than the required ten necropsies. This system of necropsy assistance and reports has demonstrated its usefulness in giving the students a good understanding of the significance of disease conditions and in inculcating orderly habits in reporting findings, gross and microscopic, in cases studied. Attendance of quiz-groups at necropsies is substituted for other exercises, except the clinical talk and the daily talk by the pathologist. Necropsies cannot always be planned for a definite hour each day, of course, but almost every class morning one or more is scheduled.

In the elementary course in pathology considerable importance is attached to the study of microscopic sections, a knowledge of the finer pathologic changes being essential to an understanding of gross lesions and clinical conditions. Each student is loaned a collection of 200 prepared sections which form the basis of the morning talks of the pathologist. In addition the microscopic sections from cases which a quiz-group has seen at the post-mortem table are issued to that group for study, the group then being quizzed on the sections at the micro-projector. Reference has been made to the assistants at necropsies following through the microscopic sections. In all kinds of microscopic study emphasis is placed on "reading the lesion backward and forward," regarding the pathologic appearance under the microscope as "an arrested moving picture." Thereby the students become acquainted with a habit of thought which they must utilize in studying gross lesions and clinical cases.

The course in elementary bacteriology occupies afternoons of the same period during which elementary pathology is being taught. This makes possible an adjustment of schedules so that during part of this period the students are studying the etiologic agents of certain diseases and the lesions of those diseases at the same time. Some of the ma-

terial used in the course in bacteriology comes from the necropsies which the students attend.

Formal lectures are not very frequently employed for instruction in pathology. They are useful for laying down general principles and for introducing main divisions of the subject (for example: "inflammation," "infection," "neoplasms," "systematic pathology"), but much of the purpose that formal lectures have pretended to serve in the past can be better served by the more informal daily talks in the presence of slides.

The last morning of the week is reserved for testing the students' information and intelligence. The first hour is devoted to examination of gross material collected during the week, each student making a report, one of the instructors then demonstrating the material. The class then breaks up into the small groups for oral quizzing. These group sessions may take on the character of "seminars," at the discretion of the instructors. Following this exercise, the last hour of the week is devoted to the study of a microscopic section in connection with which each student writes a report. The section is discussed at the next morning talk, before the whole class. This weekly test of the students on an "unknown section" has proved to be one of the most valuable aids in teaching elementary pathology, encouraging as it does the development of critical judgment as well as memory.

There remains to be added one detail of the course in elementary pathology. Students often have difficulty with certain of the new words they encounter, sometimes carrying for an astonishingly long period distinctly erroneous ideas as to their meaning. This results in a confusion that embarrasses the students' progress in acquiring a knowledge of the subject. To meet this difficulty a glossary of terms is posted and the quiz-groups are drilled on the precise meanings of the words on the list. It should be mentioned that it has been found desirable to include other terms than strictly pathological ones, even some which should have been familiar to students earlier in their biological studies.

In conclusion it may be stated that the aim of the department of pathology in planning and conducting this elementary course is to provide instruction in the principles of pathology and their application but at the same time to do this in such a way as to carry on the work of encouraging and developing in the students a scientific approach to their problems. It is the duty of teachers not only to supply "facts" to students but to help them to train their minds.

## The Tennessee Four-Quarter Plan\*

O. W. HYMAN

Administrative Officer, University of Tennessee College of Medicine

The four-quarter system of instruction as adapted to medical schools has been discussed frequently during the past two or three years. Several variations of the plan have been presented for consideration. As the plan hereinafter discussed is still another variation, I shall refer to it as the "Tennessee Plan." This plan has been developed at the University of Tennessee in order to overcome certain defects of our present methods—defects which are strikingly in evidence against the social and economic background of the State of Tennessee. The plan was first developed in 1925 and was presented to the Board of Trustees in the summer of 1926.

Our present curriculum is the traditional four-year arrangement. Each "year" consisting of three trimesters, or quarters, of eleven weeks each and two weeks of examination periods. Seventeen weeks, or virtually one-third of each year is given to vacations.

The extravagance of allowing a third of each year for vacations has been stressed repeatedly and I shall not discuss this point in detail. We concur completely with the opinion that a summer quarter should be offered for the purpose of saving the student's time.

At the University of Tennessee, however, we are more concerned about another aspect of the present situation which is not so obvious as the loss of time, but which, we believe, may be more harmful eventually. This is the effect now produced upon the medical profession by the high cost of medical education. We are also concerned in our state with the indirect effect of this cost upon the distribution of physicians.

The high cost of medical education to the student is a familiar subject. At the University of Tennessee we have made every effort, we believe, to keep down this cost. However, careful estimates give us a minimum cost of \$757.00 to students from Tennessee. Students from other states must add \$125.00 to this sum. This will seem a modest figure to some. To a large portion of our population, however, it is a barrier to medical education that is practically insurmountable. In the families of the well-to-do it is possible to give the son such a sum, but large numbers of young men must earn their way if they wish to become physicians. What chance have they?

The prospective student might earn his way as he goes by working during vacations and outside of class hours. His first obstacle is the rigidity of the present plan. He must enter college in September and he must continue until June to earn credit. If this plan has been drawn

\*Read at the Thirty-ninth Annual Meeting of the Association held in Indianapolis, Oct. 29-31, 1928.

deliberately to embarrass the impecunious, it could hardly have been wrought more successfully. The earning period is the dullest part of the year. At the same season thousands of other college and high-school students are competing for whatever crumbs of employment there may be. During the college session the schedule of study is so crowded that the student is occupied completely in keeping up with his schedule during the first two years, and, if he earns part of his expenses by outside work during his third and fourth years, he pays dearly for it as he misses his opportunities for the most fruitful study of the whole curriculum.

On the other hand, the student may remain out of school until he can accumulate enough to pay his expenses. Without entering into details it may be stated that this will take about five years. Only men of extraordinary determination and self control will abandon the work on which they have made a five-year start and undertake the study of medicine which, assuming that they will be successful students, will consume five more years, at least, and all of their accumulated savings. For all practical purposes the self-dependant man is today debarred from the study of medicine. Moreover, he is debarred, not by any defect of intelligence or ambition, but by the artificial contrivance of a rigid plan of education and lack of money.

We believe that this artificial limitation of our prospective medical students to those from wealthy families will exert a profound influence on the medical profession. The long-continued protection of its members from the competition that would be afforded by ambitious men struggling up from under is certain to be ruinous. Slothfulness and intellectual decadence are thus engendered. To assume that, if it is possible to limit the number of physicians so that they will be highly cultured, then unethical methods will be abandoned and a pure love of service and of science will lead the profession upward, is unwarranted. Such is not the nature of man.

The effect of our present plan upon the distribution of physicians in such a state as Tennessee seems to us to be apparent now. Virtually all of the medical students from Tennessee come from cities and the prosperous areas of the state. Large areas that are less prosperous send none. Moreover, to men brought up in well-to-do families in prosperous communities, the life of a physician in less fortunate areas does not represent an advance either financially or socially. As a consequence large areas of Tennessee are now deprived of medical service—areas in which previously it has been available for fifty years.

To many youths reared in the hard circumstances of the poorer areas, the life of the rural physician offers advantages worth working for long and hard. If the attainment of the goal is made possible, there is reason to believe that considerable numbers of such men will become physicians.

If past experience is a trustworthy guide, most of them will return to their home communities where friends and deeply-rooted feelings and traditions call them.

We have been led to formulate the Tennessee Plan by the desire to place medical education within the reach of large numbers of men to whom it is now denied. The best solution seems to be the quarter system—but the quarter system so modified that earning periods may be alternated with study periods and the two may be varied to secure any desired sequence. This will accommodate the impecunious student in that he may enter college at the beginning of any quarter, continue as long as he has funds, and discontinue his study at the end of any quarter without loss of credit.

Incidentally the plan also presents substantial advantages for the wealthy student. The chief advantages here would be the completion of the medical course in three years. Additional advantages have been enumerated by other proponents of the quarter system. As these advantages accrue from any four-quarter plan, they need not be stressed further here.

The essential features of the Tennessee plan are—the subdivision of the curriculum into courses in such a way that each course will extend through a single quarter; and the repetition of every course during each quarter. We propose, of course, to add a fourth quarter to be given during the summer. The following calendar indicates the sequence of quarters and the vacation periods:

#### Four-Quarter Calendar

Summer Quarter begins .....	July 12
Summer Quarter ends .....	September 26
Fall Quarter begins .....	October 4
Fall Quarter ends .....	December 19
Winter Quarter begins .....	January 3
Winter Quarter ends .....	March 20
Spring Quarter begins .....	March 28
Spring Quarter end .....	June 5

We arrive at this calendar by assuming that the tradition of the Christmas-to-New Year's holiday is so fixed that we should not undertake to ignore it. Working backward from this period for two quarters, we begin the summer quarter on July 12th. Working forward, we close the spring quarter on June 5th. This date will prove convenient for the annual graduation exercises. The annual four weeks vacation will come before and after July 1st. This is a matter of considerable importance to the treasurer's office. The fiscal year of the University of Tennessee begins as does that of the State of Tennessee on July 1st. It is highly desirable that this date shall not come in the middle of a quarter.

The following curriculum is proposed as a point of departure. We have tried to secure certain general advantages in the arrangement proposed. First, as far as possible, we wish to give related subjects concurrently. Thus we believe that anatomy may be more readily assimilated by the students if histology, embryology, biochemistry, and physiology are correlated approximately. In the future, the proposed curriculum may be changed in the direction of securing still further correlation—for instance in bringing clinical subjects closer to the laboratory branches.

The second principle that we have sought to realize has been that of bringing the subject matter of each branch of medicine as nearly as possible into linear sequence. Thus, anatomy—pathology—clinical and physical diagnosis—general surgery—minor surgery—major surgery. This is possible in the quarter system because the number of students admitted at each quarter could be limited to the number that could be accommodated in each hospital or infirmary service. As the didactic courses also would be repeated each quarter, the proper sequence as between didactic and applied parts of the subject could be secured.

The third major improvement that we hope to attain is an improved arrangement of examinations as indicated.

First Quarter		HOURS
Anatomy I .....	Extremities .....	132
Embryology .....	General .....	66
Histology I .....	Tissues .....	66
Chemistry I .....	Physical .....	55
History of Medicine .....		22
		341
Second Quarter		HOURS
Anatomy II .....	Head and Neck .....	132
Histology II .....	Neurology and Neurogeny .....	77
Chemistry II .....	Foods, Digestion, Tissues .....	66
Physiology I .....	Muscle-nerve, Blood, Circulation, Respiration .....	88
		363
Third Quarter		HOURS
Anatomy III .....	Abdomen and Thorax .....	132
Histology III .....	Organology and Organogeny .....	77
Chemistry III .....	Excretions, metabolism .....	77
Physiology II .....	Metabolism, excretion, nervous system .....	88
		374
Examination on Morphology and Physiology		



## Fourth Quarter

	HOURS
Pharmacology I .....	132
Bacteriology, Serology, Immunology .....	132
Pathology I .....General .....	88
	<hr/>
	352

## Fifth Quarter

	HOURS
Pharmacology II .....	66
Pathology II .....Special and Tumors .....	198
Clinical Diagnosis .....	99
	<hr/>
	363

## Examinations on Pathology and Pharmacology

## Sixth Quarter

	HOURS
Physical Examination and Differential Diagnosis .....	66
Therapeutics (incl. diet therapy and physical therapy) .....	44
Roentgenology .....	22
Physiology III .....Pathological .....	66
Surgery I .....General .....	22
Surgery II .....Minor .....	44
Orthopedics I .....(incl. fractures) Lecture .....	33
Urology I .....Lecture .....	11
Jurisprudence and Ethics ....Lecture .....	22
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	330

Examination on Physical Examination, Differential Diagnosis  
and Therapeutics.

## Seventh Quarter

	HOURS
Surgery III .....O.P.D. ....	66
Orthopedics III .....O.P.D. ....	55
Urology II .....O.P.D. ....	66
Otology I .....Lecture .....	11
Ophthalmology I .....Lecture .....	11
Medicine I .....Lecture .....	22
Operative Surgery .....	66
Public Health I .....Lecture .....	44
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	341



## Eighth Quarter

	HOURS
Otology II ..... O.P.D. ....	55
Ophthalmology II ..... O.P.D. ....	55
Medicine II ..... O.P.D. ....	66
Neurology I ..... Lecture and Laboratory ....	55
Dermatology I ..... Lecture ....	11
Obstetrics I ..... Lecture ....	22
Public Health II ..... Field ....	66

319

Examination on General Surgery and Surgical Specialties.

## Ninth Quarter

	HOURS
Surgery IV ..... Lecture ....	33
Surgery V ..... Animal ....	66
Surgery VI ..... Surg. Path. ....	22
Obstetrics II ..... O.P.D. ....	66
Neurology II ..... O.P.D. ....	44
Dermatology II ..... O.P.D. ....	66
Gynecology I ..... Lecture ....	22

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Examination on General Medicine and Medical Specialties

## Tenth Quarter

	HOURS
Surgery VII ..... (Incl. Gyn.) Wards ....	330
Pediatrics I ..... Lecture ....	33
Obstetrics III ..... Lecture ....	22

385

Examination on Major Surgery

## Eleventh Quarter

	HOURS
Pediatrics II ..... Wards ....	165
Obstetrics IV ..... Wards and Home ....	165
Medicine ..... Lecture ....	22
Psychiatry ..... Lecture ....	11

363

Examination on Pediatrics and Obstetrics

## Twelfth Quarter

	HOURS
Medicine VI ..... Wards .....	330
(Incl. Psychiatry and Tuberculosis)	

330

## Examination on Medicine

## Examination for M. D. Degree

The chief argument used against the type of quarter system here proposed is that the multiplication of courses imposes a tremendous increase in load upon the faculty and a corresponding increase in the budget. This increase, in our organization at least, will not be as great as might be anticipated. The departments of anatomy and pediatrics will illustrate this. At present 120 students are admitted annually to the course in gross anatomy. Our staff is composed of four teachers. A teacher for each thirty students is required to be in attendance during dissection periods. Accordingly should all 120 students dissect at once all four teachers must be in attendance. At present each instructor has an average annual teaching load of 374 hours. In the quarter plan, 30 students would be admitted each quarter. One staff member would be assigned to these and he would carry them through the three quarters of gross anatomy. His teaching load would be increased to 440 hours. If one new man were added to the staff, the average teaching load would be reduced to 352 hours. The explanation, of course, lies in the fact that under the new plan there would not be any increase in the number of student hours of laboratory work. In the department of pediatrics we should find an exactly comparable situation in as much as the hospital and out-patient instruction already is on a section basis and the teaching load here would not be increased. The amount of didactic instruction would be increased four-fold (and the number of hours of didactic instruction to each section probably would be reduced and given more thoughtfully!)

The teaching departments throughout would find an increase of load equivalent to three times the amount of didactic instruction. The administrative department also would find an increased load on account of the quarterly enrollment and withdrawals. According to careful estimates, the increased cost would be about 30%.

It may also be objected to the plan herein proposed, that too large a proportion of the instruction will be given by instructors of junior grade. Again the change from the present system is not great. The quality of didactic instruction would certainly be lowered as relatively inexperienced teachers and scholars cannot cover their subject by lecture or clinic with the same sureness of touch and breadth of viewpoint as

men of greater experience. The laboratory instruction, on the other hand, would not suffer and it might be conceivably improved. Under the proposed plan, students would have unequal opportunities. The student who has his courses with the senior teacher would receive better instruction than is now enjoyed by any of our students. The student under the junior teacher might receive poorer instruction than he now gets (but this is not assured). The average quality of instruction probably would be improved. It may be pointed out that a certain advantage will be given students in that they may elect the teachers under whom they wish to study by enrolling during appropriate quarters. After all, however, the quality of instruction need not be too heavily stressed. The end results depend mainly on what the student does.

Other objections to the quarter system such as the severe strain upon the medical student, especially in a summer climate such as we have in the southern states, have been met by other writers. To me, there seems to be but one cogent objection to the quarter system—the increased cost. The only question that should be answered then is whether the advantages of the system are worth the money. As the value of the advantages can scarcely be stated in dollars, we are not likely to get a categorical answer. We may, however, summarize these advantages in closing.

1. The medical profession would be stimulated and enriched by recruits with unusual ambition, perseverance, and traditions of hard work.
2. Impoverished communities might receive a more nearly adequate number of physicians.
3. The expensive physical plant of the college would be in almost continual use instead of lying idle a third of the time.
4. The curriculum could be improved by arranging courses in logical sequence rather than rotating sections through hospital services as at present.
5. Impecunious students would be able to earn the money to pay for their courses. Wealthy students could save as much as a year's time. All students would have some freedom in electing their teachers.

## The Quarter System at Minnesota

E. P. LYON

Dean, University of Minnesota Medical School

The Quarter System is like prohibition, religion, marriage and limburger cheese—strong in some respects, weak in others.

When a university administrator or a faculty member asks me whether his institution ought to go on the quarter system, I answer "No." And when some one at Minnesota proposes that we go back to the semester basis I oppose. I have never found enough advantage in either type of academic calendar to pay for the annoyance of going through the change from one to the other—a nightmare which we rode in war time along with other ghastly hobbies.

The advantages from a medical school standpoint chiefly concern the easy use of clinical facilities throughout the whole year. Hospitals are costly. They operate as a continuous process—no shut down for Sundays, holidays or vacations. The extension of the same system to teaching is equivalent to the addition of one-third to clinical facilities without additional cost.

Interns, who are a kind of glorified medical students, have to accommodate themselves to the schedule of hospital operation. There is no reason why senior and junior medical students should not do the same. They are past the time when they need (?) three months in summer for play. They are men, have their bachelor degrees or equivalent, ought to be working on the schedule of men and not that of school boys.

If a student must use the summer to save money, he may do so; although it is doubtful whether one who has reached the latter years of the medical course is wise to take an ordinary job if he has the opportunity of going on with his studies. He is postponing a period of larger earning capacity in favor of immediate returns. He would better borrow against such prospects just as any good business man would do.

### State Board Laws

We have not found the state laws a barrier against a reasonable shortening of the time of the medical course. Most such statutes read in substance that "four sessions of eight (or nine) months must elapse between matriculation and graduation, no two sessions being on the same calendar year." These laws are fossilized remnants of the regulation found necessary when proprietary medical schools were competing for students and some of them were bidding for attendance by the short cut of two sessions a year—like the chiropractic schools now.

As a matter of fact, the regular academic schedule—October to

June—never places a session in a calendar year. And when the medical school year became eight or nine months it was impossible to get two sessions in the same calendar year. Incompressibility seems to be a definite property of time!

#### Plan at Minnesota

At Minnesota the junior and senior medical classes each operate in four approximately equal divisions. At the end of the sophomore year one division immediately begins junior work. These students attend the summer, fall and winter quarters as juniors, the spring, summer and fall quarters as seniors, and graduate in December, thus saving six months.

Three-fourths of those who have completed the sophomore year take the regular summer vacation, pursue junior work through the fall, winter and spring, and are ready for senior work in June—the traditional date of promotion.

One-third (one division) of these new seniors go forward without vacation. Their senior year consists of the summer, fall and winter quarters, and they graduate in March—a saving of three months from the traditional course.

Another division of seniors attends the summer, winter and spring quarters (vacation in the fall), and graduates in June. The fourth division attends the regular school year—fall, winter, spring quarters—and graduates in June.

If readers can follow this scheme without a diagram, they will note that three divisions of seniors are in attendance all the time—our clinical facilities are used to capacity. They will note further that one-fourth of our students graduate at Christmas time, one-fourth at Easter, one-half in June. This facilitates the getting of internships—the December class in particular being able to find good places without delay.

#### Duplication of Teaching

We have to duplicate some teaching, particularly the lectures of one-quarter of the junior curriculum. But this does not add much to the budget. For the most part it means that members of a department have an opportunity of lecturing who would not do such work under the regular system. Each year a number of young teachers whom the traditional system of courses would keep for a long time waiting for a vacant chair, get experience in major teaching.

Clerkship instruction goes on throughout the year with shifting supervision from quarter to quarter, so that instructors and teaching fellows get teaching experience, but are not kept at such work continuously.

So far as I can see the plan works well. The students of one di-

vision seem as well trained as those of others. I do not see how Minnesota—a state school, and therefore unable to limit classes in a drastic way—could have carried on and satisfactorily trained its large classes in recent years if we had operated on the two semester basis.

Another advantage of the elastic quarter system is the comparative ease with which a student may put in additional time when he has fallen moderately behind his group. We can easily require a student to put in one or two quarters of additional study, whereas under the traditional class system the only alternative to going forward is the loss of a whole year.

### **Laboratory Courses Repeated**

So far as the work of the laboratory years is concerned our system involves a repetition of most of the courses in summer, but no effort is made to graduate classes earlier by the use of the summer quarter in the first two years. One might visualize our summer laboratory classes, therefore, as made up of flunkers who are repeating. This is by no means universally true. A considerable number of excellent students take advantage of the summer to get off required laboratory courses so as to have time for other work in the regular session. This is particularly true of graduate students who are integrating work for an advanced degree with the medical curriculum. We permit such integration to a marked extent, with the result that a considerable number of our M. D. candidates come out with an M. S. or Ph.D. to their credit.

### **Lock-step Class System**

If there is anything in American education that needs breaking up it is the lock-step class system. The four-year fetish, the idea that it is a disgrace to fall behind the company, the sentiment that one cannot possibly study longer than the minimum period or learn anything outside the required courses—all these deterrent elements to real education as an individual problem are somewhat minimized by the quarter system.

### **Tax on Administration Work**

But there are disadvantages. The administrative work is doubled. We have registration four times a year. It is a task to keep track of students and see that they get their work with some regard for sequence and prerequisites. A reasonable elasticity may be stretched easily to the point where a senior is found with freshman or sophomore deficiencies. If the student—the poor student—has his way, he will run away with his privileges. We could not possibly operate without an alert students' work committee and efficient registrar's office. Even with these we are often confronted with the cases of students who have progressed to a point where they can hardly be dropped but whose work as a whole

shows that they cannot handle medical studies as we think they should be handled.

### Too Many Examinations

Undoubtedly the quarter system as administered at Minnesota has included too many examinations—quarterly examination on every course for which a student is registered has been the rule. We dig up our seedlings too often, to see how they are growing. The student takes advantage of the system to add up gradually the required credits. If the mediocre student can avoid the drop rule of failure on half his work in any given quarter, he may keep on indefinitely repeating courses until he has finished the requirements. He purchases his education on the installment plan, like a radio or sewing machine. He drops from his mind each installment when it is earned, paid and credited on the Registrar's books.

These criticisms are, of course, inherent in any system of independent courses, the passing of which constitutes progress toward a degree. They are magnified by the quarter system.

### Yearly Comprehensive Examinations

We are hoping to remedy this condition by yearly comprehensive examinations. The new rules go into effect in the fall of 1929. They provide no quarterly examinations on courses. Any student who has successfully completed the practical work of a year may be admitted to the comprehensive on that year. If he passes, he may go on to the next division of the course. If he fails, he may take another examination in three months. If he fails twice, he will be dropped.

Repetition of courses in case of failure on the comprehensive will not be required (provided a student does the practical work satisfactorily). He may prepare for reexamination in any way he chooses. Lecture attendance will at no time be required.

We hope that the comprehensive examinations and the provisions relative to preparation for examination or reexamination will tend to establish the reading habit and force students somewhat to educate themselves. Too much at Minnesota have students come to depend on their ears and their lecture notes as their sources of knowledge. They ride comfortably on the shoulders of their teachers. They remind me of the Remora sucking tight to a shark's belly and partaking of the latter's meals without effort on its own part. Many seem to have lost the use of their eyes and never to have learned the value of the printed page.

Probably these strictures could be advanced with equal force in other institutions. American education is cursed by the carrying over of high school methods into the college field. We hope in some degree to get away from this fault in our medical school. If you hear cries for



help coming from the north in the next few months, you will know that they issue from wild-eyed Minnesota medical students who have been thrown into a cold intellectual pool and are learning to swim by their own efforts.

#### Committee on Examinations

To reinforce these principles our examinations will not be conducted hereafter by the teachers in charge of courses, but by a committee for each year's work. Over all committees will be a Chief Examiner. We hope to improve the conduct of examinations and make them something different from course examinations.

The quarter system works well at Minnesota. The complete summer quarter permits students who cannot attend the regular session, eventually to win their degrees. With the exception of the junior year a medical student might qualify for his M. B. by attending summer quarters exclusively. It would take some years but it is theoretically possible. Usually the system works out in a mixed way, the irregular and employed student attending one or more years straight and supplementing and completing his work by summer quarters. Our plan has enabled several teachers of laboratory branches, both in our own and in other schools, to get their M. D. degree. I think we have the most elastic system in the country.

These are strong counts. Over against them are to be set, as I have said, the administrative difficulties and the necessity of some device—a system of comprehensive examinations, for example—to insure unity and solidity in the educational process.



## Teaching of Pharmacology

M. L. BONAR

Professor of Pharmacology, West Virginia University School of Medicine

Pharmacology has been defined as "the study of changes induced in living organisms by the administration, in a state of minute division, of such unorganized substances as do not act merely as foods." A more inclusive definition is given by Professor Dixon, of Cambridge: "That science which deals with the alteration of function in living matter brought about by changes in environment."

Now, whatever the definition of Pharmacology, its accepted aim is to establish rational bases for effective therapeutics. With these therapeutic applications ever in mind it is then the duty, and the business of the teacher to present these fundamentals in such a manner that the student may acquire them with the greatest facility, and use them with prime effectiveness. Furthermore, the student must be made keenly aware of the present significance of the course, of its personal reality: that the relief, and often the cure, of human ills will depend upon its thoughtful application. The relationship therefore, between Pharmacology the Science and Therapeutics an Art as well as a Science must be continually emphasized. How may this best be done?

Interest, of course, is a premise for facile learning, while experience is accepted as a basis for effective learning. How then may we best arouse interest, and incorporate helpful experiences in the teaching of Pharmacology? It would be presumptuous for me, or perhaps for anybody, to tell somebody else how HE should teach a subject in HIS own particular situation. Individual teachers in different schools must of course present their subjects in such a way, and of such content, as to suit their local conditions, attain their cherished aims, and best express their individual personalities. However, many of us in the teaching profession do not possess in any unusual degree that intangible something called Personality. We are therefore obliged to resort to some other, perhaps less inspirational method of stimulation.

Now, in the West Virginia University School of Medicine, where I teach, we give only the first two years of the medical course. Our students are therefore required to go to other medical schools to continue their preparation. On an average our class of forty-five students is scattered among more than thirty different schools. It is necessary therefore that we give such subject content as will satisfy the requirements of all of these schools, and at the same time fit our students to enter upon the clinical work without serious handicap.

To attain these results, we pursue in Pharmacology the following plan:

1. The class room and the laboratory exercises are closely correlated.
2. In the laboratory work, the individual student makes his observations almost entirely upon the human subject. He uses therapeutic percentages, dosages, and techniques in every case.
3. Outstanding phenomena, including the localization of the action of drugs, and observation of their toxic symptoms are presented in mammalian demonstrations.
4. Drills in prescription writing are conducted throughout the course. Attention to the simple mechanics and a careful analysis of the therapeutic possibilities of each prescription is given. The drugs in the prescriptions follow closely the class room and laboratory exercises, at a time when the students' interests are the keenest. Furthermore, an attempt is made to emphasize such prescriptions as are actually being used in general practice.

In this brief paper I wish to direct special attention to one phase of the teaching of Pharmacology: the experimental pharmacology or "applied pharmacodynamics" as we should like to call our students' experiments. This work is carried on in the following manner: As a laboratory course, the class is divided into groups of four. Students are selected in rotation as subjects for experiment. Three normal, or control, observations are made upon the selected subjects at fifteen minute intervals. This includes routinely the temperature, heart rate, blood pressure (diastolic and systolic), reflexes, and such other phenomena, both subjective and objective, as may be indicated—depending upon the drug prescribed. The drug is then administered, and repeated observations are made throughout the development and course of its actions. Careful records and thorough analyses of all phenomena are required. Care and accuracy in observation are easily encouraged by the occasional administration of "unknowns." By these "experiences" the students get vivid impressions of the drug actions, and the subjective symptoms are emphasized in a way not to be attained in any other. This work is supplemented by mammalian demonstrations (usually dogs) which each group of students, after a preliminary rehearsal, conducts in turn before the whole class.

At periodic conferences all points of significance and interest are analyzed, practical therapeutic applications made, and typical prescriptions prepared while the experiences are vivid in mind. The subjective symptoms again receive their deserved attention, the side actions are given their due consideration, and the students are encouraged to draw their own personal conclusions based upon their text book reading, their lectures, and their personal experiences. Logical support to all conclusions drawn must be given. This must all be written out and incorporated in the permanent records preliminary to the periodic conferences.

The sustained interest, the lively arguments, and the contagious

enthusiasm induced by this procedure is very pleasing, both to students and to instructor. It is not uncommon for groups of students to request an extra session to try out some of the drugs again, or to perform some of the elective exercises just to see how they work, or to settle an argument, or even to prove that the text or the instructor's statements are wrong! Variations from the accepted rule occur in every class. They help to emphasize idiosyncrasy and the human equation.

A few illustrations may serve to indicate some of the possibilities:

A student received four drops of an "unknown" on his tongue. His observers made records of six, ten, and fourteen mm. fall in blood pressure with an increase in heart rate. Great was their chagrin when they learned that the "drug" was alcohol.

Their diagnosis had been Spirits of Nitroglycerine: perhaps a case in which belief, or a hunch, was mother to the observation, or, as Dr. Conklin would say: "Thinking wishly." The hunch was wrong. Slipshod observations are thus discouraged.

Another student was to have administered to him, hypodermically, one-fourth grain of morphine. His first control observation showed a systolic pressure of 116 mm. mercury. Fifteen minutes later it was 136, and in fifteen minutes more, 148! We decided not to give him the drug. Thirty minutes later his systolic pressure was below 120. Anticipation of being stuck with a hypodermic needle was the apparent cause of this phenomenon.

Of over one hundred students receiving one-fourth grain of morphine hypodermically four of them showed rather alarming symptoms of persistent nausea and vomiting, marked pallor and faintness. In one of these cases the symptoms persisted for over four hours. Probably it is only incidental, but all of the students so affected were distinct blonds! However, different races are known to react differently to the same drug, so why should not different individuals? On the other hand, of a like number of students receiving one-fourth grain of morphine combined with one-one hundred twentieth grain of atropine not one showed the above mentioned symptoms. With dogs, of course, this is not the case: practically all which receive morphine, with or without atropine, retch and usually vomit if there is anything in the stomach. Such comparisons associated with vivid experiences are remembered, perhaps with the ever present query: What will be the effect upon this particular human being?

Again, the marked contrast in the behavior of students after taking atropine and scopolamine is so marked as never to be forgotten. Hours of cramming and "boning" cannot leave the impression to be at all compared, in this situation, to a well directed shot under the skin.

We have presented our work in Pharmacology in this manner over a period of four years. I believe that it has some very commendable

points in its favor, as compared with the purely animal experimentation of most laboratory courses. Of course the instructor in direct charge must be a physician. He must have the full confidence of his students, and the cooperation of his fellow teachers. Furthermore, he must know his students well. He must keep in close touch with the development of all their symptoms, detect all those that vary much from the usual, reassure those students who become apprehensive (and there are many), and meet every emergency before it develops.

To present a course in this manner requires thought, preparation, and some clinical experience. During the laboratory periods the instructor must be thorough about his business. The students' confidence is necessary for success. When established their enthusiasm soon becomes contagious. The instructor even is fired with new zeal and is quite as much elated over a reaction he has observed for the twentieth time, as are his students who observe it their first. Furthermore, having so much fun in the laboratory the students are willing to take special pains in writing up their notebooks. To them these books now mean something; they are a sort of Memoir of some very actual and vivid experiences to be utilized perhaps repeatedly in after years. Therefore when through with the course I am thoroughly persuaded that the students possess a more intimate acquaintanceship with the drugs studied, and appreciate in a greater degree the real significance of Pharmacology by the method herein outlined than by any other of which I know.

## Honor System in the Medical School

IVAN E. WALLIN

University of Colorado School of Medicine

The "honor system" in conducting examinations is not an innovation in American educational institutions. It has been in successful operation at a few schools for a great number of years. It has been "tried out" at a considerable number of schools and found to be a failure. In connection with medical schools, so far as I have been able to learn, the Universities of Texas and Colorado appear to be the only schools that have tested this system. Recently, it has been rumored that the University of Texas has abandoned the honor system. Without any further analysis, it would appear that the honor system might be a questionable system of conducting examinations.

The author believes that the "honor system," if properly conducted, may become one of the most important factors in cleansing the medical profession of undesirable members. This conviction has prompted me to attempt to analyze the factors that appear to be essential in the proper organization and conduct of a successful honor system as well as to point out the reasons for its failures. Before we proceed to this analysis it might be well to review the benefits to be derived from the "honor system."

### Benefits of Honor System

The successful "honor system" should benefit the students, the faculty and the medical profession as a whole. From the student's point of view it removes unfair advantage. The student comes to realize that a knowledge of the subject is essential for a passing grade and it follows that the "honor system" stimulates scholarship. The student who is indifferent morally is strengthened, the morally strong is sustained, and the student lacking in moral character is eliminated.

The faculty is relieved of the tiresome and disgusting task of "polishing" students while they write an examination or quiz. Instead of one or two instructors proctoring an examination, there are, theoretically, just as many proctors, less one, as there are students taking the examination. Further, the "honor system" tends to develop a more friendly and cooperative spirit between faculty and students.

### The Honor Students and the Medical Profession

From my point of view, the greatest benefit to be derived from the successful "honor system" falls to the medical profession as a whole. Unethical practitioners are of two types: those who had a criminal

tendency before entering the medical school, and those who developed a criminal tendency after entering the medical school. The latter group, which is the larger, perhaps, develops criminal tendencies as a result of a lack of medical knowledge following a school career of "cribbing." Both types are largely eliminated by the "honor system." Obviously, it would be more satisfactory to eliminate unethical practitioners before they are licensed to practice medicine than after. If the "honor system" became general in medical schools, the unethical practitioner would eventually disappear.

From a study of the "honor systems" at various schools and from a personal contact with this system as a student at Princeton University and a teacher at the University of Colorado Medical School, I have made certain observations which I believe may help to analyze the factors responsible for the failure or success of this system. We shall discuss a few of the more important conditions, and if I appear to be dogmatic it is only because I am convinced that the point in question is fundamental.

#### **Students Must Demand Honor System**

Obviously, if any law or rule is to become effective, it is essential that the majority who are concerned are in sympathy with the principle involved and want the law. This holds for the "honor system" in a medical school as it does for "prohibition" in our national life. The "honor system" can not be "put across" as an edict from the faculty, but must be a demand from the students. This fact has undoubtedly been the most important deciding factor in the success or failure of the "honor system" wherever it has been tried. Without the proper spirit and sympathy on the part of the students an "honor system" introduced by a faculty will be a farce.

#### **Students' Attitude Toward Honor System**

You may ask: "Do the students in my particular school have the proper spirit and sympathy for an 'honor system'?" The students in your school and in my school are fundamentally alike. They have had very much the same type of experiences prior to their entrance into the medical school. This experience included four years in a high school where cheating in examinations was common. It also included at least two years in a college or university where cheating in examinations was fairly common. The majority of the students in your school and in my school are fundamentally honest. With a major portion of the student body fundamentally honest, the "honor system" can be operated successfully in any medical school where it is demanded by the students.

It is possible that the demand and spirit for an "honor system" is lacking in your school at the present time. The development of such a

spirit need not be left to chance, however. The faculty occupies a vantage point in creating and directing the spirit of a student body. A few "heart to heart" talks from faculty members may be sufficient to create new interests on the part of the students.

### Faculty Interest

After an "honor system" has been introduced in a school, it is essential that the faculty take an active interest in the operation of it. The entering students need instruction concerning the principles on which the "honor system" is based. While this may be given by upper class men, it undoubtedly can be done more effectively by a faculty member. It appears to me that this is a very important point and I believe that many of the failures in connection with the "honor system" are due to insufficient instruction and development of spirit.

### Unity of Interests

There is one factor that is essential in the successful operation of an "honor system." This may be called "unity of interests." In a large university with its diversified departments and activities, the student body becomes separated into groups where the chief "unity of spirit" is displayed at football games. In any particular college or department of the university, however, there is usually a unity of interest that reminds one of the conditions in a small college. In a smaller college it is easy to create a "college spirit." This is especially true in a medical college where all the students are striving toward a common goal and have a common interest.

It is not too early to begin to teach moral principles to our future practitioners on the first day that they enter training for their profession. Further, it is not difficult to create a spirit of honesty in a student body, but this should not be left to chance. On the opening day of school, when the entering class is getting its first impressions of "medicine," is a good time to impress on the students that the practice of medicine is an ethical profession; that they are so vitally concerned in the high moral character of the members of the profession as those who have already been licensed. It is a good time to inaugurate a "friendly working-together spirit" between student and instructor—a spirit which eliminates suspicion in the workshop.

### Honor System at Colorado

The "honor system" has been in successful operation in the University of Colorado School of Medicine since 1916. The faculty at the school is convinced that this system has raised the general moral character of its students and graduates, and that it has been responsible for the elimination of some undesirable practitioners. The students at



the school are proud of the honor system (see article by Dr. L. C. Hepp '29 in recent number of *Diplomate*) and live up to it fearlessly. Our experience has shown that the students insist more emphatically than the faculty that violators be given no quarter.

The "honor system" might be made a modern substitute for the ancient code as it is elucidated in the Hippocratic Oath. There is no profession or field of endeavor in which honor and honesty is so essential. Why not make the training of these qualities a part of the curriculum?

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### Negro Medical Schools

At the thirty-ninth annual meeting of the Association the following resolution was presented by Dr. E. P. Lyon, dean of the University of Minnesota Medical School, and was unanimously accepted.

RESOLVED: That the Association of American Medical Colleges recognizes the need for better facilities for the education of negro physicians and nurses; that the attention of philanthropic citizens and foundations is directed to the opportunities afforded in the field of negro medical education; and that we particularly call attention to the excellent work being done against great odds at the Howard University Medical School and the Meharry Medical School, and to the many needs of these institutions for buildings, hospital facilities, equipment and endowment.



## Adaptation of Medical Education to the Needs of the Individual Student

W. H. MACCRACKEN

Dean Detroit College of Medicine and Surgery

In educational discussions reference is very frequently made to the high degree of standardization which has been achieved in the development of the prescribed courses in the medical sciences leading to a professional degree. This standardization has evidently been necessary, and in a measureable degree desirable, in order that the incoming members of the medical profession be equally well qualified to minister to the needs of the sick and to maintain sanitary conditions in their respective communities with equal skill, regardless of where their professional training may have been secured.

It is, of course, trite to say that this is a period of standardization along all possible lines, but of one thing we may be quite certain, and that is, that no one has as yet succeeded in standardizing medical students.

In a discussion of automobiles three principal factors predominate: mileage, speed and durability. Possibly cost of upkeep might be added, and it is assumed that in any make of automobile these factors will be quite uniform in individual cars.

### Variability of Students' Ability

It would seem that many of us have a tendency to apply these principles to the consideration of students, a procedure which is productive of educational inefficiency, and must inevitably lead to disastrous results in many cases. Some students are evidently speedsters, occasionally sport models, while others possess the characteristics of the humble, slow, but undeniably useful truck. Some are durable and can survive long periods of mental stress while others wear out quickly. Yet each student is given the same task to perform and it is generally assumed that if he is unsuccessful in its performance in a given time, he has demonstrated himself as unfit for a professional career. It appears evident that a greater degree of flexibility is desirable in dealing with our students in order that even-handed justice may obtain and that we graduate as useful members of the medical profession as may be possible.

### Classification of Students

A study of students extending over a considerable number of years had led to the following conclusions. Students are roughly to be classified as follows:

- (a) The man of high intelligence and mental and physical endurance who is entirely capable of absorbing, digesting and making his own the material provided him by his Instructors. This without undue fatigue and without the need of the long vacation which has become so definitely a part of our educational system.
- (b) The average "garden variety" of student who is capable of doing fair work under present existing conditions with the usual periods of rest between successive scholastic years, and
- (c) the slow student who, though of unquestionable intelligence, still finds it impossible to travel at the rate acceptable to his more facile classmates.

To these groups might be added the type of student who is definitely unfit for a professional career and who finds himself unable to appropriate the instruction offered him. Of course, there is no sharp line of demarcation, each type merging into the others, but the types are sufficiently definite to merit special consideration and treatment.

#### Four Thousand Hours vs. Four Years

In order that this may best be brought about it is my opinion that every medical school should operate continuously instead of being closed for one quarter of the calendar year.

It seems to have been pretty generally conceded that the modern medical course will require about four thousand hours for its completion. This is open to some question, many educators feeling that with the elimination of a certain amount of unnecessary and, perhaps, even undesirable instruction, notably along the lines of the so-called "specialties," the time required might be considerably reduced. Assuming, however, that four thousand hours is the acceptable minimum time, it would seem advisable to adopt this as the length of the medical course and to do away with the present formal statement so often encountered in medical practice acts, to the effect that the medical course shall consist of four periods of instruction, each of a certain number of months, to be received in four separate calendar years. Whether the majority of the state boards of registration in medicine would be willing to accept the substitution of four thousand hours of instruction as the time content of the medical course, remains to be seen. If such an arrangement be acceptable it is obvious that students should be permitted to travel as fast as their ability will allow. This being determined by the character of the work performed by the individual student.

The type "A" student would almost certainly be able to complete his four thousand hours of work in three calendar years without harm to himself. This privilege should, perhaps, be limited to students who have an academic experience equivalent to that acquired in securing a

degree in the Arts or Sciences and whose work has been and continues to be uniformly of a high character.

The type "B" student might be expected to travel about as fast as he does under present existing conditions. He might be permitted to choose whether he preferred to drop out for a formal vacation each year or whether he would work continuously but with a lighter program than that allowed the student of type "A". Whichever his choice he would be expected to devote about four years to the completion of his routine medical studies.

The type "C" student should be given light work from the beginning or at least from the time that his relative slowness is clearly demonstrated, and it should be made plain to him that the spending of a longer time in residence and the opportunity of accommodating his rate of travel to his individual characteristics is a privilege rather than a penalty.

So far as the unfit student is concerned, he should, of course, be eliminated from the medical school as soon as possible but great care must be used in order to discriminate between the student who is unfit and the type "C" student who is slow but frequently sure.

### **The Adjustable Curriculum**

It is evident that the adoption of such a plan as this involves the abandonment of the Freshman, Sophomore, Junior and Senior classification. The student would enter the school and would accept the courses as offered him, it being clearly understood that the curriculum would be adjusted in the best possible way to most efficiently meet his needs.

The plan necessitates an extremely careful consideration of the needs of the individual student and would certainly in some measure, increase the cost of maintaining the medical school since it would involve an increase in the number of teachers, in order to provide for continuous instruction. Nevertheless, the time saved to the capable student would in the long run have an aggregate value much in excess of the augmented costs of operation.

### **Fees**

Fees should be established on the basis of the hours of instruction rather than on the years of attendance.

A plan of this kind obviously involves many difficulties of adjustment both intra and extra mural, nevertheless there is little doubt that these difficulties could be met and overcome as they might arise, and that the plan suggested is better adapted to the individual needs of our students and better calculated to enable them to make of themselves the best that in them lies, than the one at present pursued in many of our schools of medicine.

**"Gardez"**

The following letter is self-explanatory.

Dr. Fred C. Zapffe, Secretary,  
Association of American Medical Colleges,  
25 E. Washington Street,  
Chicago, Illinois.

My dear Dr. Zapffe:

I wish to report to you a matter which is of concern to the Medical Association and the Medical Colleges.

Mr. Norbert Joseph Paul Carothers made application for admission to the Stanford School of Medicine during the past few weeks. On receipt of full credentials from him his transcript of record appeared to be irregular. On checking with the original sources of such documents we found that records from the University of Oregon and from the University of Washington had been improperly altered by the student. A document from Saint Mary's College in Oakland proved to be a forgery and to carry a seal which that institution reports to us as not being the official seal of the college, being a poor copy of the official one. Under these circumstances, we have informed Mr. Carothers that no consideration can be given to him in connection with his application and that we are reporting this matter to the various associations interested in such cases. The matter is being presented to you for whatever action is suitable on your part.

Yours sincerely,

KARL M. COWDERY,  
Assistant Registrar, Stanford University.

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DR. FRED C. ZAPFFE, Editor, 25 East Washington Street, Chicago

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### The New York Meeting

The call for the fortieth annual meeting of the Association has been issued and it is greatly to be desired that every college in membership will be represented.

The program is a good one. It is easy to get to New York by rail, auto, aeroplane or boat. It is said that even walking is good. There is much to see and learn in New York. That city has more medical schools than any other city in the United States, and a number of them have developed perfectly wonderful and marvelous building programs. Others are contemplating similar plans. The Columbia University Center, the place of meeting, is virtually completed. The New York Hospital and Cornell University Corporation is ready to begin building. Whether the desire to emulate—or the ability to do so—is with us there is no question that these things are well worth seeing.

Then, there is the joint session with the Association of American Universities, the first time that such a thing has been possible. Here is opportunity to exchange views with the university executives, the men who, in the final analysis, are responsible for what happens in medical schools. Such a meeting cannot fail of achieving much to be desired results, promoting better understanding and facilitating carrying out the aims held by both parties. It is quite likely that another similar chance will be offered next year when a joint meeting with another group of executives may be held. Plans are under way at this time to make such a meeting possible.

Everybody who is the least bit interested in medical education and teaching

is cordially invited to come to this meeting and to participate in the discussions. This is not an exclusive meeting. It is intended to be an inclusive meeting, including many who may be present and the very great majority who cannot be present. To these the messages brought forth at the meeting will be conveyed by the JOURNAL, the official publication of the Association.

Without a doubt this will be the best attended meeting. The dinner to be held on Thursday evening will give opportunity to a very large group to get together and talk things over. Many teachers are prevented by their duties from attending the meeting in the daytime, but they are free in the evening. It is hoped that they will not fail to be present at the evening gatherings.

### Teaching of Obstetrics

Efforts made to increase the number of hours allotted in the medical curriculum at present to the teaching of obstetrics led to the adoption of the following resolution by the House of Delegates of the American Medical Association:

WHEREAS, The time allotted for the teaching of obstetrics in the curriculums of the several medical schools has been cut down and is inadequate to drill the student thoroughly in this important major, be it

*Resolved*, That the House of Delegates request the Council on Medical Education to investigate the present teaching of obstetrics in this country and make such recommendations for increasing the clinical teaching hours of obstetrics as the results of its investigations may warrant.

### Medical Education Statistics

The annual educational number of the Journal of the American Medical Association is replete with much interesting information of unquestionable authoritativeness. The wealth of material prohibits making an abstract which would not tax the space limits of this publication, but some points must be touched on.

The total number of medical students last year was somewhat greater than the year before—20,878 as against 20,545. The increase in the freshmen group was very slight, 78, the total being 6,277.

There were 184 more graduates than last year, the total being 4,446. Of this number, 2,951 (243 more than last year) had college degrees. The largest number came from Illinois medical colleges (397); New York was second with 382; Pennsylvania third, with 294; Massachusetts fourth, with 193, and Ohio fifth, with 145.

The women students fell four shy of last year's number, 925 as against 929, but seven more graduated this year than last year, 214 as against 207. The one medical school for women exclusively had 12.3 per cent of all women students, but graduated only 8.9 per cent of the total graduated. Evidently the women students prefer to attend coeducational schools. Why?

Another extremely interesting point brought out is the matter of fees. Three colleges charge less than \$100; six, less than \$150, but more than \$100; twenty charge from \$150 to \$250; nineteen from \$250 to \$350; thirteen from \$350 to \$400; seven charge between \$400 and \$500; six charge between \$500 and \$600; and one charges more than \$600. The nine colleges charging less than \$150 are state institutions, the fees being for residents only. Nonresidents pay more.

The age of the graduates is interesting in view of the not inconsiderable amount of discussion on shortening courses so that men might graduate at an earlier age. More than one-half (2,393) of the total number of graduates (4,446) were between 24 and 26 years of age; 297 were 23 years of age; 3,793 graduated before the age of 30.

The greatest number of graduates at any age was 865 at age 25. The highest age averages were at the two schools for negro students—Howard and Meharry, probably because these students secure their education at greater handicaps than do other students.

### The Required Intern Year

The number of states and colleges requiring the intern year for graduation has not increased since 1927. Eleven colleges have this requirement. Five of these schools are located in states having the requirement. Of the thirteen states having the requirement, five do not have any medical school within their boundaries. The first school to make the requirement was the University of Minnesota, in 1915; the first state was Pennsylvania, in 1914.

### Earnings of College Teachers

Frank P. Bachman, director of the Division of Public Education of the General Education Board, presents a most interesting résumé (*Science*, 20:26, July 12, 1929) of some work done for the Board by Mr. Trevnor in 1928. It concerns itself solely with the earnings of college teachers as estimated from the returns made by 302 colleges to an inquiry submitted to 15,361 teachers of four professional ranks: professors, associate professors and instructors.

The average salary of all liberal arts teachers in these 302 institutions for 1926-1927 was \$2,958, an increase of 30 per cent over 1919-1920.

Geographically, the highest average salary (\$3,385) was paid in the New England states; the lowest (\$2,660), in the Southern states.

According to professional rank, the averages were: professors, \$3,798; associate professors, \$3,256; assistant professors, \$2,669 and instructors, \$1,941.

The size of the institution was also a determinant in the size of the average salary; for instance, a professor received \$4,573 in a Class A school; \$3,444 in a

Class B school and \$2,748 in a Class C school. There was not quite so much variation in the average salaries of the other ranks. And, the average salary was higher in men's and coeducational schools than in women's colleges.

With respect to the average salaries paid teachers in schools of different types, it was highest in the law schools, \$5,197. Then there is a considerable drop. Teachers in schools of theology come next with an average salary of \$3,889. The average in educational institutions was \$3,438; in medical schools it was \$3,391. Schools of music gave the lowest average, \$2,388; schools of fine arts came next with \$2,633 and schools of arts and science had the third lowest average, \$2,958. Schools of engineering ran a close fourth with an average of \$2,989.

A study of the range of salaries showed that of the 15,361 teachers under consideration, 92 per cent received less than \$5,000; 99 per cent received less than \$7,500 and only 0.01 per cent (sixteen teachers) receive \$10,000 or more. These sixteen are of professional rank and are the chosen out of 4,728 teachers of this rank in the institutions studied.

The matter of supplementary earnings was also investigated. Of 11,361 teachers replying to an inquiry, 67 per cent reported that they supplement their salaries by earned income. The proportion of teachers so doing seems to increase with professional rank: professors, 76 per cent; associate professors, 70 per cent; assistant professors, 63 per cent; instructors, 52 per cent.

Supplementary activities are numerous, but may be classified under writing, extra teaching or institutional services, lectures, consulting and miscellaneous activities. Fully 70 per cent do extra teaching or institutional services; 25 per cent write; 20 per cent lecture; 10 per cent do consulting work and 25 per cent do miscellaneous work.

The total supplementary earnings of these teachers was equal to 24 per cent of their annual salaries. The range is between \$100 and \$10,000; the median is \$522. Less than one-fourth make \$1,000 or more, and 7.7 per cent, \$2,000 or more. Sixty-seven of the 7,072 teachers earned \$5,000 or more, and only thirteen, \$10,000 or more. The higher the rank and the regular salary, the higher the added income.

Economic necessity is not often the spur for doing extra work. Choice is more often the stimulus. Seventy-two per cent preferred to do regular work only, and 23 per cent did additional work from choice.

Of the married teachers, 77 per cent supplement their regular salaries as against 47 per cent of the single teachers. Of those reporting appreciable private income, outside of teaching salaries, 65 per cent supplement their salaries as compared with 69 per cent of those who presumably do not have an appreciable private income. Of those who reported appreciable private income and who supplemented their salary, 45 per cent stated that they did it from necessity.

The conclusion is reached that under present salary conditions teachers in general are compelled to supplement their salaries by outside work, and for the majority that means more teaching.

A similar study to the above was made by the writer for the Commission on Medical Education, including, however, only the teachers in medical schools. It is probable that the results of this study will be published by the Commission. It, too, disclosed many interesting facts.

### The Thomas William Salmon Memorial

The Honorable George W. Wickersham announces the establishment of the Thomas Salmon Memorial to provide recognition for the scientist who has made the greatest contribution in the fight



against mental disease during each year. Awards are to be national and international and will provide for the wider dissemination of the knowledge of mental hygiene and insanity, through cooperation with the New York Academy of Medicine, in whose hands the administration of the \$100,000 fund is to be placed.

The plan provides for a series of lectures to be given in various cities of the United States under the auspices of accredited scientific, medical or educational organizations. Provision will also be made for the publication and distribution of the lectures from year to year.

The Memorial provides freedom from academic or institutional restriction of any kind and is intended to stimulate unrestrained research, study and expression of opinion.

### **American Board of Obstetrics and Gynecology**

At the recent meeting of the American Medical Association, the Section on Obstetrics, Gynecology and Abdominal Surgery, adopted the following resolution:

**RESOLVED**, That the Section on Obstetrics, Gynecology and Abdominal Surgery of the American Medical Association participate in the organization of the American Board of Obstetrics and Gynecology, whose purposes shall be:

1. To elevate the standard and perform such functions as will advance the cause of obstetrics and gynecology.
2. To determine the competence of specialists in obstetrics and gynecology.
3. To arrange, control and conduct investigations and examinations to test the

qualifications of voluntary candidates for a certificate to be conferred by the board.

4. To serve the public, hospitals and medical schools by preparing lists of practitioners who have been certified by the board.

5. To protect the public against irresponsible and unqualified practitioners who profess to be specialists in obstetrics and gynecology.

Similar boards have been formed by the ophthalmologists and the otolaryngologists and are operating successfully. These boards have done good work.

### **Extramural Clinical Teaching**

The following resolution was adopted at the annual meeting of the American Medical Association:

**WHEREAS**, The Missouri State Medical Association approved the suggestion of its president, Dr. Frank I. Ridge, that medical schools be encouraged to arrange for periods of practical experience for students with practitioners of high standing, preferably in rural communities, and

**WHEREAS**, By such an arrangement medical students could learn much about treating disease and contacts with people in their homes, therefore be it

**Resolved**, That the House of Delegates instruct the Council on Medical Education and Hospitals to consider the plan proposed by the Missouri State Medical Association, and if, in their judgment, it is found feasible and beneficial, the Council is urged to encourage medical schools to inaugurate suitable methods for providing these vacation periods of practical experience for their students.

## College News

### Western Reserve University

The Department of Pharmacology has prepared a number of cinema films which it has found very useful in teaching. Several pharmacologists who have seen these films have expressed a desire that they be made generally available. We should be pleased to cooperate in this, without profit to the department, through the Purchasing Office of Western Reserve University. Since the cost of taking the films has been incurred and defrayed by the University for its own benefit, the University is willing to waive any charges for this, and to sell the films at the cost of making the copies, plus a reasonable charge for handling; namely, at \$5.00 per each hundred feet (in round numbers) of 16 mm. "non-inflammable" film, plus \$5.00 overhead for each film, plus \$1.50 for the humidor container, irrespective of length, plus the cost of postage or express. The films may also be enlarged to the larger standard size, if desired, with a corresponding increase in cost. The films would remain the property of the purchaser; it being agreed that they be always shown with the credit-title: "The Department of Pharmacology of Western Reserve University," as furnished and that no copies be made without permission of Western Reserve University. The purchasers are also cautioned against exhibiting the films to general audiences.

The films may be ordered from the Purchasing Office, Western Reserve University. As they will be printed only on order, at least two weeks should be allowed for delivery. If desired, the films may be sent on approval, and if returned in good condition within two weeks, only the service charge of \$5.00 will be made.

The films can be projected with any of the standard 16 mm. projectors, such as Bell & Howell Model 57 C or Eastman Model A. Information as to the

suitable focal length of the lens, accessory equipment, etc. can be obtained from the photographic supply houses.

### Stanford University School of Medicine

Dr. Ralph B. Seem of the Billings Memorial Hospital of the University of Chicago, has been appointed physician superintendent of Stanford Hospitals and professor of hospital administration in place of Dr. R. G. Brodrick, deceased.

Dr. Allen K. Krause, formerly associate professor of medicine at Johns Hopkins University, who has recently been made Director of the Desert Sanatorium and Institute for Research, has been appointed clinical professor of medicine. While Dr. Krause will be located at Tucson, Arizona, he will be in San Francisco at certain times during the year to participate in the teaching at Stanford.

### Tulane University School of Medicine

Five hundred beds in the Charity Hospital, New Orleans, were allocated for the exclusive use of the Tulane School of Medicine at a meeting of the board of directors, August 1. The medical school has been depending on faculty members for service in the hospital for study. These beds have been scattered throughout the buildings; now they will be concentrated in groups. The hospital and patients will benefit by the arrangement as more efficient service will be possible.

Plans are being made for the new nine story clinic building, soon to be erected near the Charity Hospital. The building will cost \$1,250,000, which has been given by the General Education Board for the purpose of erection and equipment. The building will be known as the Hutchinson Memorial Building and will provide administrative offices for the medical school.

### Colorado Foundation for Research in Tuberculosis

This foundation now has an endowment of \$145,533. An endowment of \$200,000 would provide sufficient income to enable the work of the foundation to go forward on its present scale. The laboratory quarters are inadequate and plans have been drawn for a \$50,000 laboratory building. Two main lines of research are being followed, the first a series of studies on immunity, continuing the work that has been carried on by the research director of the fund, Dr. Gerald B. Webb, Colorado Springs, and his co-workers for twenty years, and the second, a study of the effects of light and radiation. The foundation was organized in May, 1924, as a nonprofit corporation with the hope of contributing to the prevention and cure of tuberculosis. Dr. Webb has general supervision, but the work is carried on by Drs. Charles H. Boisservain, Charles T. Ryder and William F. Drea. The secretary is Dr. Edward N. Chapman, 1520 North Nevada Avenue, Colorado Springs.

### Medical College of Virginia

Announcement has been made of plans for the development of the medical center in Richmond at the Medical College of Virginia.

The first unit of the new center, a building for the college school of nursing costing approximately \$300,000 for construction, equipment, and site, has been completed. The other units will go up as fast as funds, which are being sought in different directions, are available. Most of the ground to be used has already been acquired.

The buildings projected are:

1. A library to be constructed in association with the library of the Richmond Academy of Medicine, cost approximately \$125,000.

2. A teaching unit to house the outpatient department and laboratories for the teaching of chemistry, bacteriology, and pathology, cost approximately \$750,000.

3. A nurses' dormitory for the St. Philip Hospital school of nursing, an institution maintained by the college for negro girls, cost approximately \$150,000.

4. A building for clinical dentistry, cost approximately \$400,000.

5. A general hospital for white patients to be built in association with the outpatient department and teaching laboratories, cost \$1,000,000 or more.

6. A gymnasium, auditorium, and recreational center, cost undetermined.

When this plan is carried through then it is hoped to provide dormitories for students in the schools of medicine, dentistry, and pharmacy.

New appointments to the faculty of medicine: Garrett Dalton, instructor in obstetrics; J. B. Dalton, instructor in orthopedic surgery; John R. Ellison, Jr., assistant in surgery; J. Arthur Gallant, assistant in medicine; Oscar L. Hite, assistant in nervous and mental diseases; Paul W. Howle, associate in surgery; Everett H. Ingersoll, associate in anatomy; W. A. Peabody, Ph.D., associate in chemistry; John H. Reed, Jr. and Earle L. Shamblen, assistants in surgery.

### Howard University School of Medicine

Dr. Numa P. G. Adams, Chicago, has been elected dean to succeed Dr. Edward A. Balloch. Dr. Adams is a graduate of Howard University and of Rush Medical College. He served an internship at the City Hospital, St. Louis, and has been a member of the staff and director of the heart clinic at the Provident Hospital in Chicago.

### Creighton University Medical Department

A program of expansion and improvement that will enable Creighton University to double the capacity of its school of medicine has been announced. Creighton will admit 100 freshmen next September as compared with fifty-four in recent years. It is announced that classrooms, laboratories and facilities will be enlarged and a number of additional instructors will be added.

### University of Alabama School of Medicine

Appointments: Edward A. Boyden, Ph.D., professor of anatomy at the University of Illinois, to be professor and head of the department of anatomy; Thomas E. Hunt, Ph.D., from the University of Chicago, to be instructor in histology and embryology; Franklin S. DuBois, M.S., from the University of Illinois, to be instructor in anatomy; Eleanor L. Abrams, Ph.D., from the University of Chicago, to be research associate in anatomy; Dr. Allan W. Blair, from the Pathological Institute of the Royal Victoria Hospital, McGill University, Montreal, to be instructor in pathology and bacteriology.

### University of Virginia

Announcement has been made of the establishment of a chair of public health and hygiene and the appointment of Dr. Kenneth F. Maxcy of the U. S. Public Health Service as the first incumbent. Dr. Maxcy graduated at Johns Hopkins University School of Medicine in 1915 and received the degree of doctor of public health at Johns Hopkins in 1921.

### Loyola University School of Medicine

Appointments: Louis D. Moorhead, dean of the school of medicine, has been made professor and head of the department of surgery to succeed Edward L. Moorhead, deceased; Milton M. Portis and Sidney A. Portis have been elected clinical professors of medicine; William J. Corcoran, clinical professor of pediatrics; Ralph C. Sullivan, clinical professor of surgery, and Bernard Portis, associate professor of surgery.

### Washington University School of Medicine

Beginning in 1931 a four year college course will be a requisite for entrance to the medical school. This change in policy is in part due to the increased number of applicants, who are unable to be admitted because the facilities of the school will not accommodate so many.

### University of Tennessee School of Medicine

The medical department and the pharmacy and dental schools will operate the year around beginning with the 1930-1931 school year. This will make it possible to finish the course in three instead of four years. The trustees have announced that \$1,000,000 will be spent on new buildings for the university. A \$300,000 library and a \$200,000 engineering hall will be completed by September, 1930.

### Fordham University

Plans were announced at the annual dinner of the Alumni Association of Fordham University for the reopening of the medical school, which was discontinued several years ago because of financial difficulties.

### Matriculation of Edinburgh Medical Students

The Edinburgh University Court has decided that from October, 1930, no student shall be permitted to enter on the medical curriculum until he has passed the pre-registration examinations in chemistry and physics. A tuition course in chemistry for the examination will be arranged during the long vacation. Hitherto students have been allowed to start the medical course without having passed the pre-registration examination, provided they attended classes in elementary chemistry and physics and appeared for the examination at the end of the first three months.

### Memorial to Dr. Christian R. Holmes

The Holmes Hospital, facing from across the street the University of Cincinnati College of Medicine, was dedicated to the late Dr. Christian R. Holmes, former dean of the medical college. The hospital is for the accommodation of members of the faculty. On the wall of the solarium which occupies the fifth floor is a mural decoration by Wessel, and over it this legend:

The University of Cincinnati makes

this acknowledgment to Bettie Fleischmann Holmes, Charles Phelps Taft, Annie Sinton Taft, William Cooper Proctor and Jane Eliza Johnston Proctor for their devotion to the interests of the people of this city.

### Western Reserve University

The cornerstones of three building now under construction in the Medical Center were laid during commencement; one of these buildings is the new Lakeside Hospital, which will cost \$3,300,000 and accommodate 280 patients.

### University of Pennsylvania

Plans have been announced for the merger this fall of the Howard Hospital at Broad and Catharine streets with the Graduate Hospital of the University of Pennsylvania. The Howard Hospital, one of the oldest in Philadelphia, by this arrangement will be uniting with other old institutions. The graduate hospital of the university was organized in 1916, when the Medico-Chirurgical College and Hospital joined the university to form the graduate school of medicine. Two years later the Philadelphia Polyclinic was absorbed in this merger, and later the Diagnostic Hospital of Philadelphia. The graduate school of medicine now occupies a \$2,000,000 modern building erected in 1927.

### Harvard Medical School

Appointments: Channing C. Simmons, acting surgeon in chief of Huntington Memorial Hospital. Assistants: John L. Jacobs, Eliot F. Porter, Stacy R. Mettier, Laurence B. Ellis, Clark W. Heath, Frank W. Marlow, Jr., Nathan Sidel, Wheelan D. Sutliff, Fred Gibbs, H. H. Merritt, Jr., Arthur B. Donovan, Leon E. White, Jr., William H. Lewis, Jr., George K. Mallory, Henry E. Gallup, Edwin S. Goodwin, Harold D. Pyle and Horatio Rogers. Instructors: Junius M. Rawlings and Ernest M. Daland. Research Fellows: Harold A. Abramson, Richard T. Beebe, Douglas R. Drury, Jacob Lerman, George W. Lewis, Arthur A. Marlow, Ovid O. Meyer, William T. Salter. Teaching Fellows: George H.

Hitchings, Marshall N. Fulton, Elbert L. Persons, Frederick Kellogg, Chester W. Hampel, Wesley T. Pommerenke, Henry Pickering Walcott. Fellow: Fuller Albright.

### University of Texas Medical School

Plans for the construction of the new outpatient department of the John Sealy Hospital have been awarded. The project will cost about \$400,000 and is expected to be completed by January, 1930. A laboratory for the study of clinical pathology and the hospital necropsy room and lecture theater will occupy the fourth floor of the building. The building will measure about sixty by two hundred feet and will be connected with the main hospital by an overhead arcade. The central part will be five stories high; the remainder, four floors.

### Yale Medical School

A plan for the intensive study of the teeth in relation to the body in general has been perfected. The project has been made possible by a grant from the Rockefeller Foundation. It will be the first comprehensive investigation by medical specialists of the rôle played by the teeth in disease and health.

A study-group composed of physicians, surgeons, radiologists, bacteriologists, dentists, and pathologists has been formed, with Dr. M. C. Winternitz, dean, as chairman. Clinical investigations of the condition of the teeth and the bacteria to be found at their roots will be carried on in cooperation with fundamental research in the structure and function of the teeth in health and disease. The germs found at the roots will be isolated and studied in relation to germs found in the mouth and in other portions of the body, and their effect upon the organism as a whole.

The purpose to create a group of medical specialists in teeth, just as there are medical specialists in diseases of the other organs of the body.

Each year from two to four graduates of dental schools will be admitted to the School of Medicine to continue their med-

ical studies and to work with the dental pathology study-group. In addition to concentrating upon the natural history of the teeth, causes of diseases of the teeth, and the relation of these diseases to general body conditions, attention will also be given to the development of operative procedure more in accordance with the modern knowledge of surgery.

President Angell announced during commencement week that bequests and gifts received during the year totaled \$9,250,000. The increased endowment presently will permit an increase in the salaries of teachers to a maximum of \$9,000 for professors and a minimum of \$6,500, thus increasing the maximum present pay by \$2,000 and the minimum by \$1,500. The present scale for instructors at Yale begins at \$2,100 and ends at \$3,000.

Appointments and promotions: Edward C. Streeter, visiting professor of the history of medicine; Harold S. Burr, Ph.D., professor of anatomy; Ralph E. McDonnell, assistant clinical professor of dermatology; Lewis A. Koch, clinic instructor in pediatrics; John H. Bumstead, John A. Hillsman, Richard P. Stetson, Anna J. Eisenman, instructors in medicine; John M. Freiheit, instructor in gynecology and obstetrics; Lyman Meiks, instructor in pediatrics.

### Meharry Medical College

A new \$2,000,000 model medical school for the training of negro physicians, to be built in Nashville with gifts from the General Education Board and the Julius Rosenwald Fund.

A part of the project, to which alumni will contribute \$200,000, will be a 120-bed hospital. There will be facilities for 200 students and departments of dentistry and pharmacy.

### Cornell University and New York Hospital Medical Center

The first of fourteen buildings that will form the new medical center was started June 17, when ground breaking ceremonies were held on the East River site between Sixty-eighth and Seventy-first

streets. The chairman of the Joint Administrative Board, Mr. Edward Sheldon, removed the first earth, and the son of the late Payne Whitney, who worked for many years to make the medical center possible, applied the silver spade; others present were Drs. Walter L. Niles, formerly dean of Cornell Medical College; G. Canby Robinson, director of the medical center; William Darrach, dean and professor of clinical surgery of the College of Physicians and Surgeons of Columbia University, and Samuel A. Brown, dean and professor of therapeutics, University and Bellevue Hospital Medical College. The main hospital building of this group will rise twenty-four stories. About this central building will be group lower buildings containing laboratories and research institutes, while along the river bank will be special hospitals for psychiatry, pediatrics and maternity, a home and school for nurses, homes for employees, a power plant and various mechanical facilities.

### Temple University Medical School

Dr. William N. Parkinson, medical director of the Samaritan and Garretson Greatheart hospitals of Temple University, has been appointed dean of the medical school to succeed Dr. Frank C. Hammond, who has held that position many years.

### College of Medical Evangelists

One of the largest and best equipped dispensaries in the West has recently been opened. The old structure has been completely remodeled at a cost of \$100,000 and now contains over 30,000 feet of floor space, which is more than twice the size of the old dispensary, through which passed in excess of 90,000 patients in the fiscal year ending June 30, 1928. Clinics are offered in every department of medicine and are conducted largely by fourth-year students under the direction of attending physicians. Excellent opportunities are offered the student to familiarize himself with the technic of numerous minor surgical operation. The obstetrical department has supervision



over an average of one hundred expectant mothers every month, all deliveries being performed by the student. A large amphitheater known as "Evans Hall," in honor of Dr. Newton Evans, dean of the school, is included in the building and is being equipped with an electric stethophone for the amplification of heart and respiratory sounds.

The Harveian Society, organized among the alumni for the promotion of interest in the advancement of scientific research, has recently announced that prizes, the nature of which has not as yet been definitely determined, will be conferred upon candidates successful in attaining places on the Honor Roll in the National Board examinations in either Part I or II. The prizes are to be awarded at graduation and it is hoped that they will stimulate even greater interest than has already been shown among the student body in these very practical examinations.

#### University of Pennsylvania

At the one hundred and eighty-ninth commencement, it was announced that Edward B. Robinette had given \$500,000 to the university to establish three memorial professorships. Mr. Robinette gave \$250,000 to the university last year to establish the Robinette Foundation for the Study, Treatment and Prevention of Diseases of the Heart and Circulatory System. The recent gift brings the total of his donations to the university to \$1,000,000.

#### University of Illinois

The department of zoology plans to teach comparative anatomy in the first semester and the essentials of human anatomy in the second semester, and is on the lookout for a teacher. The candidate must have had the training in human anatomy equivalent approximately to that in the first two years of medical school. Some experience in teaching will be called for also. The salary will depend on the standing of the individual but for one without the doctor's degree will be \$2000 to \$2200.

The work in anatomy is given to

coaching school students and constitutes a special section of the Department of Zoology. The accommodations and equipment for the work are good and there are a number of reasonably well trained assistants associated with the work under the direction of the person in charge.

#### University of Georgia School of Medicine

Dr. James E. Rush has been appointed head of the department of public health and Dr. Erich W. Schwartz head of the department of physiology, succeeding Dr. William Salant, resigned. Dr. Rush is doing graduate work at Yale University; previously he was professor of public health at the University of Kentucky, Lexington. Dr. Schwartz comes to Augusta from the University of Pittsburgh.

#### St. Louis University

The Wolfort Scholarship has been created by Mr. Sigmund Wolfort and Miss Clara Wolfort in memory of their parents, Levi and Peppe Wolfort. This scholarship presents several unusual features. It is created in perpetuity to help a needy student, but he must be at the same time one of superior excellence, and to this end the agreement provides that the incumbent may avail himself of the stipend not only for his undergraduate medical career but also in pursuit of a specialty for two additional years either in the St. Louis University or in another.

#### University of Missouri

Medical Student Scholarship Fund. A fund amounting to \$500 annually was established at the Springfield session of the Women's Auxiliary. According to the plan as outlined by Mrs. M. P. Ravenel, Columbia, president of the Auxiliary, the Auxiliary will endeavor to raise the sum of \$500 annually for a fund to be known as the Medical Student Scholarship Fund. This amount is to be awarded to the medical student of the State University selected by a committee composed of Drs. M. P. Ravenel, M. Pinson Neal and



Dudley A. Robnett, Columbia. The student will receive the fund for two successive years after he leaves the State University for completion of his medical studies in another school. Dr. and Mrs. Ravenel have personally contributed to such a fund annually during the past several years.

### University of Southern California School of Medicine

William D. Cutter, A.B., M.D., dean; Harry J. Deuel, Jr., A.B., Ph.D., professor of biochemistry; Paul S. McKibben, B.S., Ph.D., LL.D., professor of anatomy; Maurice B. Visscher, A.B., M.S., Ph.D., professor of physiology and pharmacology; Ernest M. Hall, A.B., M.S., M.D., professor of pathology and bacteriology; Burrell O. Raulston, M.D., professor of medicine and chairman of the department of medicine; John F. Kessel, Ph.D., associate professor of bacteriology and parasitology; Clinton H. Thienes, A.B., M.A., M.D., associate professor of pharmacology; Esther H. Bartosh, A.B., M.D. and Philip Randall Fulton, M.D., instructors in anatomy; Frederick C. Messer, B.S., instructor in biochemistry; Lawrence Parsons, A.B., M.D., instructor in pathology; Arthur H. Hixson, B.S., M.D., Floyd R. Parks, A.B., M.D., Elroy F. Sheldon, A.B., M.A., M.D. and Kenneth W. Taber, A.B., M.D., demonstrators in anatomy; Joseph C. Vintez, M.D., demonstrator in pathology; Joseph S. Butts, B.S., M.S., assistant in biochemistry; Ruby B. Moede, B.S., M.S., technical assistant in physiology and pharmacology; Paul W. Smith, B.S., M.S., teaching fellow in physiology and pharmacology.

**Resources:** When the medical school was launched in the spring of 1928, the Board of Trustees signified its willingness to appropriate for this school out of its general income as much as \$25,000 a year until a permanent endowment should be provided. Physicians of the city of Los Angeles, mostly alumni of the old school, have subscribed about \$200,000 as endowment for the medical school. The income from students' fees (the tuition is \$300) has amounted during the

past year to about \$16,000. During the past year, therefore, the revenue of the medical school has been more than sufficient to cover its expenses.

For the coming year, however, with two classes to teach and a regularly organized full-time faculty for the laboratory branches, a budget of \$90,000 is required. Income from students' fees estimated at \$30,000, income from endowment \$10,000, and appropriations from university funds \$25,000, a total of \$65,000, leaves a deficit of \$25,000 for which as yet no provision has been made.

**Physical Plant:** The medical school has no building of its own. Temporary quarters have been allotted to it in the new Science building which was completed in the fall of 1928. The department of anatomy has the exclusive use of two laboratories and six staff rooms which, in a meagre way and for the time being, satisfy its requirements. The other laboratory departments, physiology, pharmacology, pathology, bacteriology and biochemistry, are forced to share laboratory space with other departments of the University and the space assigned to the teaching staff of these departments, although apparently the best that could be obtained, is entirely inadequate. It is expected that within another year or two a new building will provide suitable housing for the medical school.

**Clinical Facilities:** At present the medical school has none. Actual teaching of the clinical subjects will not begin until the fall of 1930. In the meantime, negotiations are under way looking toward the acquisition by the University of the Methodist Hospital, an institution of some 200 beds located about half a mile from the campus. Should this transfer be consummated, it is expected that the medical school would be built upon a property adjacent to the hospital so that all of the medical school activities—hospital, dispensary, laboratory and library—may be concentrated in one place. There is the further opportunity to utilize for teaching purposes the Los Angeles County General Hospital Unit No. 1, which contains a great abundance and variety of material.

**Needs:** To build and equip and endow an institution for the teaching of medicine in accordance with the best of modern standards, including in such an institution a small number of hospital beds, a large and well-organized dispensary, as well as the laboratories necessary for the clinical and preclinical sciences, involves an investment of approximately \$15,000,000. Until such time as this sum or a substantial part of it can be secured, it will be necessary for the University in some way to meet a deficit of from \$25,000 to \$100,000 annually.

### **Massachusetts General Hospital**

Under the direction of the Harvard Medical School this hospital offers an intensive six day fracture course for graduates, October 7 to 12. The course will extend through a period of eight hours each day, divided in morning, afternoon and evening sessions. The instruction will be based on acute and convalescent fracture cases and on the study of known end results in over 800 old cases. It will include operative and non-operative treatment, demonstrations of splinting, suspension, skeletal traction, and anatomical review. Attendance is limited. The fee is \$50.

The following men will participate in the course: Charles L. Scudder, Daniel F. Jones, Nathaniel Allison, A. W. Allen, E. M. Daland, T. W. Harmer, G. A. Leland, H. C. Marble, A. W. Reggio, W. A. Rogers, M. N. Smith-Petersen, H. K. Sowles, P. D. Wilson, E. L. Young.

For information apply to Assistant Dean, Courses for Graduates, Harvard Medical School, Boston, Massachusetts.

### **Rockefeller Foundation Fellowships**

During 1928 the Rockefeller Foundation supported about 800 fellows from forty-six different countries in medical education, research, public health and nursing education and in the physical and biologic sciences. The foundation has been supporting fellowships of this kind for several years. It has turned over to other agencies the administration

of some of them, while retaining direct control of those fellowships designed to prepare men and women for specific positions in medical and nursing schools, government health departments and other institutions with which the foundation is cooperating.

Fellowships turned over to other agencies to administer during 1928 included 171 by the National Research Council; eighteen by the Australian National Research Council; twelve by the British Medical Council; nine by the Notgemeinschaft der Deutschen Wissenschaft, and eight by the National Committee for Mental Hygiene. The Rockefeller Foundation accepted immediate responsibility last year for 584 fellowships including 201 in public health; 331 in medical education; forty-three in nursing education, and nine in human biology.

### **United States Pharmacopoeial Convention**

On May 13, 1930, the United States Pharmacopoeial Convention will meet in Washington, D. C., to organize the work of revision of this official standard for drugs and medicines.

The convention meets but once in each decade and the societies and organizations entitled to representation in the convention are named in its constitution and by-laws. In order to admit new members to the convention it is necessary to amend the constitution and by-laws.

The amendments altering the membership of the conventions provide for greater representation from medical schools and professional organizations. They are as follows:

#### **CONSTITUTION**

##### **ARTICLE II**

##### **Membership**

Section 1. The members of the United States Pharmacopoeial Convention, in addition to the incorporators and their associates, shall be delegates elected by the following organizations in the manner they shall respectively provide: incorporated medical colleges, and medical schools connected with incorporated colleges and universities; incorporated colleges of pharmacy, and pharmaceutical

schools connected with incorporated universities; departments of incorporated universities, which departments are devoted to scientific research in chemistry or in other lines related to chemistry or pharmacy; incorporated state medical associations; incorporated state pharmaceutical associations; the American Medical Association; the American Pharmaceutical Association, the American Chemical Society, the National Association of Retail Druggists, (and) the National Association of Boards of Pharmacy, and the Federation of State Medical Boards of the United States; provided that no such organization shall be entitled to representation unless it shall have been incorporated within and shall have been in continuous operation in the United States for at least five years before the time fixed for the decennial meeting of this corporation.

Medical and pharmaceutical associations and colleges of medicine and pharmacy in Hawaii, Porto Rico, the Philippine Islands and in the Republic of Cuba (where the Pharmacopoeia of the United States has been adopted as the official pharmacopoeia) shall likewise be entitled to representation by delegates on the same basis as the other associations and colleges mentioned in this section.

Section 2. Delegates appointed by the Surgeon-General of the United States Army, the Surgeon-General of the United States Navy, and the Surgeon-General of the United States Public Health Service, the Secretary of Agriculture, the Secretary of Commerce, the Association of Official Agricultural Chemists, the Association of American Dairy, Food and Drug Officials, the National Wholesale Druggists' Association, the National Dental Association, the American Drug Manufacturers' Association, the American Pharmaceutical Manufacturers' Association, the Federal Wholesale Druggists Association, the United States Division of Customs, and the University of Havana, and by the organizations not hereinbefore named which were admitted to representation in the convention of 1900, shall also be members of the corporation.

### American Conference on Hospital Service

A contract has been signed providing that the library of the American Conference on Hospital Service be taken over by the American Hospital Association and be maintained for three years as a department of the association, effective July 1. The American Conference on Hospital Service was incorporated in Illinois in 1920, the charter members including the American Hospital Association, American Medical Association, Catholic Hospital Association of the United States and Canada, American College of Surgeons, American Association of Industrial Physicians and Surgeons, Association of American Medical Colleges, Federation of State Medical Boards of the United States, American Nurses Association, American Association of Hospital Social Workers and the medical departments of the U. S. Army and Navy and U. S. Public Health Service; other organizations became members later. The following have resigned from the conference: American College of Surgeons, American Institute of Homeopathy, Association of American Medical Colleges and the Federation of State Medical Boards of the United States. The conference, whose object was the betterment of hospital service, organized the hospital library and service bureau which was to collect and index information on hospital and public health activities. The bureau has for years gratuitously distributed information to building committees, health officials, hospital superintendents and others. The constituent members of the conference and individuals and hospitals have contributed to the support of this work. The headquarters of the bureau have been in the building of the American Hospital Association, 18 East Division Street, Chicago, since 1927. The directors of the American Hospital Association and a committee of the conference came to believe that the hospital association was fitted to assume the administration of the bureau for the best interest of all concerned. It is understood that members of the conference have not definitely dis-

posed of their equity in the library and that they will continue to be interested in its development. It is hoped that within this three year period the cooperation from members of the conference, hospitals and members of the association will be such as to place the library on a permanent financial basis.

### University of California Medical School

The establishment of a visiting professorship in the medical school has been announced. The first occupant of the new chair will be Dr. Lewellys F. Barker of Johns Hopkins University School of Medicine, Baltimore, who will lecture and hold clinics during March, 1930.

Gifts amounting to more than \$100,000 included \$50,000 from the Rockefeller Foundation for work on vitamins and hormones by Dr. Herbert M. Evans;

\$1,150 from the National Research Council to study the effects of irradiation on living organisms; the first installment (\$625) of a gift of \$12,500 to be made over a period of five years by the Chemical Foundation, Inc., for the work of Carl L. A. Schmidt, Ph.D., in biochemistry; \$50 from the milk commission of the San Francisco County Medical Society, and \$300 from the Certified Milk Producers' Association of America for the study of brucella infection of milk.

### Welch Medical Library

The William H. Welch Medical Library and the department of the history of medicine will be dedicated, October 17-18. The address on Thursday will be given by Dr. Harvey Cushing, of Harvard University Medical School, and on Friday by Prof. Karl Sudhoff of the University of Leipzig.

## Personals

William H. Welch, professor of the history of medicine in Johns Hopkins University Medical School, has resigned the presidency of the Maryland State Board of Health, a position he has held for thirty-one years.

Thomas S. Cullen, professor of clinical gynecology, has been appointed his successor.

William H. Park, professor of bacteriology and hygiene in the University and Bellevue Medical College, received the degree of doctor of science from Yale University.

William H. Carmalt, a member of the medical faculty of Yale University from 1876 to 1907, received the degree of doctor of laws from Yale University.

William H. Wilmer, director of the Wilmer Ophthalmological Institute of Johns Hopkins University, received the

degree of doctor of science from New York University.

Edward A. Boyden, editor of the Anatomical Record, has been appointed professor and head of the department of anatomy in the School of Medicine of the University of Alabama.

William W. Campbell, president of the University of California, has resigned.

Robert G. Sproul, vice-president and comptroller of the university, has been appointed to succeed Dr. Campbell.

James B. Sumner has been appointed professor of biological chemistry in the Ithaca division of the Cornell Medical School.

Lewis H. Weed has retired as dean of the faculty of medicine of Johns Hopkins University. He will remain head of the department of anatomy.

William S. Thayer, professor of medicine in Johns Hopkins University, has been elected an overseer of Harvard College.

Nathan C. Foot, professor of pathology, University of Cincinnati College of Medicine, has sabbatical leave for one year. He will study abroad.

Richard A. Bolt, assistant professor of child hygiene and lecturer in pediatrics, University of California, has resigned to accept an appointment as director of the Cleveland Child Health Association, associate professor of hygiene and public health, Western Reserve University, Cleveland, and associate in preventive pediatrics at the medical school.

Robert A. Black, professor of pediatrics, Loyola University of Medicine, will have charge of the new \$300,000 La Rabida Sanatorium in Jackson Park.

Joseph L. McCool has been appointed associate clinical professor of ophthalmology, on the faculty of the University of California Medical School.

Thomas G. Lee, for thirty-seven years a member of the faculty of the University of Minnesota Medical School, has retired from active teaching. He is the last member of the original faculty.

David P. Barr, professor of medicine in Washington University School of Medicine, was awarded the honorary degree of doctor of laws by Central College.

John Farquhar Fuller, Jr., of St. Paul, Minnesota, has been appointed head of the department of physiology at Yale University but will not take up his duties till July, 1930. He is now at Oxford conducting a research on the central nervous system.

Jean Redman Oliver of the pathology department of Stanford University Medical School, has been appointed professor and head of the department of pathology in Long Island College Hospital College of Medicine.

Karl Meyer, professor of bacteriology in the University of California, left for Europe to study Mediterranean and Malta fevers.

Henry B. Thomas, professor of orthopedic surgery in the University of Illinois College of Medicine, has charge of the orthopedic program developed by the Illinois Elks Association in behalf of the crippled children of Illinois.

Dean Lewis, professor of surgery in Johns Hopkins University School of Medicine, gave the address at the commencement exercises of Northwestern University Medical School.

Lewis H. Weed, professor of anatomy in Johns Hopkins University School of Medicine, delivered the commencement address of Cornell University Medical College.

David C. Wilson, formerly with the Clifton Springs Sanatorium, has been appointed associate professor of psychiatry and neurology in the Department of Medicine of the University of Virginia.

Prof. Oskar Frankl of Vienna recently delivered twenty lectures on gynecologic physiology and pathology at the Woman's Medical College of Pennsylvania and ten lectures on endocrinology.

Charles L. Mix has resigned as professor and head of the department of medicine, Loyola University School of Medicine.

The gold medal of the Society of Apothecaries of London has been awarded to John J. Abel, professor of pharmacology, Johns Hopkins University School of Medicine, Baltimore, for distinguished service in therapeutics.

As successor to Prof. R. J. A. Berry, who has resigned his position as professor of anatomy at the University of Melbourne, Prof. F. Wood Jones, Rockefeller professor of physical anthropology in the University of Hawaii, has accepted the chair of anatomy.

George M. Kober, formerly dean of Georgetown University School of Medicine, is writing his reminiscences. One of his first contributions appeared in the *Military Surgeon*, July. He shows that the U. S. Weather Bureau had its origin in the medical department of the U. S. Army from observations made by medical officers at outlying army posts.

Nathaniel Allison, since 1923 professor of orthopedic surgery at Harvard University Medical School, Boston, has been appointed professor of surgery in charge of the division of orthopedics at the University of Chicago.

Harvey Cushing, Mosely professor of surgery, Harvard University Medical School, has been awarded the Lister medal of the Royal College of Surgeons.

Timothy Leary has resigned as professor of pathology, bacteriology and medical jurisprudence at Tufts College Medical School.

William S. Thayer, Johns Hopkins University, has been appointed a member of the education commission which will study the relation of the government to education by Secretary of the Interior Wilbur.

A. M. Dunlap, for eight years professor of ophthalmology, otology and laryngology in Peking Union Medical College, China, has returned to this country to resume practice and teaching.

Sidney Bliss, associate professor of biological chemistry at McGill University, has accepted the chair of biochemistry in the School of Medicine of Tulane University.

Edmund Andrews, associate professor of surgery in the College of Medicine of the University of Illinois, has been appointed associate professor of surgery at the University of Chicago.

Isidore S. Falk has been given a full professorship in hygiene and bacteriology at the University of Chicago.

Daniel de la Paz, secretary of the faculty of the College of Medicine of the University of the Philippines, will attend the annual meeting of this Association in November.

George W. Bartelmez, University of Chicago, was awarded a full professorship in anatomy.

Walter W. Chipman, professor of obstetrics and gynecology, McGill University Faculty of Medicine, Montreal, has severed his connection with the university after many years of service. His resignation, however, will not be effective until a successor has been appointed.

William E. Gallie has been appointed professor of surgery at the University of Toronto Faculty of Medicine to succeed the late Dr. Clarence L. Starr.

Walter S. Leathers, dean and professor of preventive medicine and public health in Vanderbilt University School of Medicine, has been appointed a member of the National Board of Medical Examiners.

Ira D. Hogg, assistant professor of anatomy in the University of Pittsburgh School of Medicine, has been doing research work in the Wistar Institute of Anatomy during the summer.

Francis Bayard Carter, assistant in medicine at Yale University School of Medicine, has been appointed associate professor and head of the department of obstetrics and gynecology at the University of Virginia.

D. L. Pankratz has been appointed instructor in anatomy in the School of Medicine of the University of Tennessee.

Dr. Menzo W. Herriman, Long Island City, has given \$8,000 to Syracuse University College of Medicine to establish a scholarship, the income of which will be awarded to the senior student who is most deserving of aid financially.



Ralph O. Porter, dean of the school of medicine, University of Utah, has resigned to resume the practice of medicine.

Otto F. Kampmeier, professor of anatomy in the College of Medicine of the University of Illinois has been appointed head of the department to succeed the late Dr. Emmel.

Irving S. Cutter, dean of Northwestern University Medical School, will also serve as superintendent of Passavant Memorial Hospital, one of the teaching hospitals of the medical school.

Henry McE. Knower is no longer a member of the faculty of the School of Medicine of the University of Alabama. He was professor and head of the department of anatomy.

Thomas P. Brennan, assistant professor of psychiatry in the State University of Iowa College of Medicine, has resigned to accept the superintendency of the Wayne County Training School, Detroit.

Beryl I. Burns, professor of anatomy in the University of Utah School of Medicine, has been appointed dean to succeed Ralph O. Porter who resigned recently.

Boston University conferred the degree doctor of laws on Walter B. Camon, professor of physiology in Harvard Medical School.

Erwin E. Nelson, associate professor of pharmacology in the Medical School of the University of Michigan, was given sabbatical leave for one semester to study with Walther Straub in Munich.

The University of North Carolina has granted the honorary degree of doctor of laws to Dr. George H. Kirby, professor of psychiatry, College of Physicians and Surgeons of Columbia University.

John K. Scudder, for many years secretary of the Eclectic Medical College of Cincinnati, has resigned.

Charles W. Beaman has been appointed his successor.

Frederick Ebersson, assistant professor of medicine in the School of Medicine of the University of California, has accepted the directorship of the clinical and research laboratories of Mount Zion Hospital, San Francisco.

Karl E. Mason has been appointed assistant professor of anatomy in Vanderbilt University School of Medicine.

H. H. Woollard has accepted the chair of anatomy in St. Bartholomew's Hospital Medical College, London.

Stuart Graves, dean of the School of Medicine of the University of Alabama, has been asked to serve temporarily as acting health officer of the state.

J. Jay Keegan, dean of the University of Nebraska College of Medicine, has resigned to enter the practice of medicine.

Charles W. M. Poynter has been appointed acting dean.

Amedee Granger, professor of radiology, Tulane University of Louisiana Graduate School of Medicine, has been made a Knight of the Order of the Crown of Belgium.



## Abstracts of Current Literature

### Regulations for Study of Medicine in Roumania

Bucharest University has compiled new regulations regarding the study of medicine, some of which are as follows: The professorial board is to convene at the beginning of every school year and fix the number of first term students. In deciding this, the board is to consider the accommodation of students in clinics and lecture rooms in such a manner that the smooth course of teaching shall not be unfavorably influenced. If there are more applicants than fixed by the board, those candidates are to be selected who have made excellent records in natural science. The period of study has been fixed at six years, and participation in hospital practice will be obligatory from the seventh to the twelfth semester. There are to be yearly doctorate examinations and theses. Students of all semesters are to take oral, written and practical examinations as the professors demand. The examinations will consist of practical, verbal and written papers, and are to be held twice a year, in June and October. The autumn examinations are to be reserved for those who fail in June. Those failing in two or more subjects will repeat the semester's work. Examinations for the title of doctor consist of four parts: (1) anatomy, histology and physiology; (2) internal and external pathology, pathologic anatomy and bacteriology; (3) experimental medicine, general pathology, hygiene, pharmacology (these parts can be taken after the successful completion of the third year); (4) clinical medicine, surgery, obstetrics and obstetric surgery, to which one of the following subjects is to be added automatically: clinical therapy; forensic medicine; dermatology and syphilology; pediatrics; juvenile surgery and orthopedics; urology, gynecology; neuropathology; psychiatry; ophthalmology, otorhinolaryngology. These examinations can be taken only after the successful comple-

tion of the sixth year. Each candidate will have to prepare a thesis on some subject of the medical sciences selected by himself. The thesis, before being printed, will have to be approved by the professor under whose control it was prepared. According to the new regulation, future specialists will have to spend a whole year in special study. Specialists are to be trained in surgery, public hygiene, forensic medicine, microbiology and experimental medicine, obstetrics and gynecology, dermatology and syphilology, urology, psychiatry, neurology, ophthalmology, otorhinolaryngology, radiology, balneology, physical therapy and dentistry. At the end of the specialist year the candidate must pass an examination and prepare a dissertation on the sphere of the specialty, on the basis of which he is to be accorded the title of specialist and be given a diploma. In order to be entitled to call himself a specialist a physician will have to possess a "specialist" diploma.—*J. A. M. A.*, May 11, 1929.

### Physiology Basis of Treatment

Dixon states that all precise knowledge in therapeutics is based on controlled experiments on animals or man, and that the elucidation of the action of medications by the methods and data of experimental physiology is one of the most important steps taken to place medicine on a scientific basis. How important this is may be gauged from the fact that all fundamental advances in treatment in the last thirty years have originated, directly or indirectly, from experiments on animals. There can be no doubt, then, that the future of therapeutics, and therefore of medicine as a whole, is intimately connected with physiology; there can be no doubt that advance in the practice of medicine is dependent on those trained in the methods and fundamental truths of physiology, who devote themselves in

the ward and biologic laboratory to investigating how best to prevent or cure disease, and so relieve suffering.—W. E. DIXON: *British M. Journal*, London, July 27, 1929.

### Some Features of Medical Education

The great fault with science in this country, as it is used for education in medicine, is that physics is taught in very small part with the idea that some of the men will go into other things, but chiefly with the view that most of the men will go into engineering. It is looked upon as part of that vocational training. Chemistry is not taught with general culture in view, but with the idea that many of the students will become chemists, especially industrial chemists. The early courses in science in college should be taught not with the idea that they are part of the education for a specific career, but a course that is intended to give educated men, who are going to use these things in their lives, some knowledge of what they mean in the general philosophy of life and what they contribute to the understanding of life. By that the medical man will get a much better understanding of life than if he is taught simply the burdensome factual matter and the technical principles of organic chemistry. That is a thing that we need to correct. Another thing we need (in the Eastern universities, at least) is to let very superior students use some work toward two degrees. This has for years been allowed at Oxford and Cambridge. When a man gets his B.A. degree there he is about two years on in his medical work, if he is doing a superior type of work. The great Eastern universities might well do this, with, however, the distinct proviso that certain high scholarly standards must be met by such men. That would save a year or two for the medical student. Even if it were accepted in the medical course, he would come out of

the medical course prepared to do more advanced scholarly work than he is now prepared to do. As to the clinical years, most of the clinical teachers would tell you that the student is taught very much more practically now than twenty years ago; he sees more of patients, has more contact with them, and comes through the course with much more practical training than he had two decades or three decades ago. On the other hand, we hear many practitioners saying that the graduate as he comes out now is less practical in his attitude and has much less poise and initiative and judgment. I do not believe the fault lies in the clinical teaching itself in the medical schools of this country. There are faults in the latter; some teachers, especially the younger men, tend to overdo the teaching of subjects which are of interest chiefly to themselves; but the great fault is in the hospital training. Some of our states require hospital training; some of our universities do, but whether they do or not public opinion requires it. Now, the hospital is a very much better place for patients than it was twenty-five years ago; it is a very much better place for the more mature staff, and it is a much worse place for the training of an intern than it was twenty-five years ago. This is because he is more part of a machine now; he is so much in the habit of calling for expert help in every respect, calling for the radiologist, the neurologist, and other specialists, that he gets out of the habit of making decisions for himself. He also gets so accustomed to the elaborate apparatus that hospitals have nowadays that he feels lost without it when he gets out. The whole experience tends to make him just what he is said to be; he often comes out with less poise and less ability to adapt himself to the demands of general practice. Owing to all the investigation of and interest in improving medical education, we have become frightfully jammed with regula-

tions. We have been told we must do this and that and must add this and that to the medical course. In addition to that, medicine has been going at a frightful pace, and medical teachers have felt that they had to add this or that or the other, and the medical student has been busy all day long doing something he is told to do. The result of that is to make the man less independent, with less judgment and less initiative than he had twenty-five years ago. It takes away from him all opportunity to develop his initiative or judgment; he is told to be in a place doing a specifically designated thing all day. It has also prevented the students from using the library effectively. Some of our schools have met that difficulty by doing a surgical operation on the curriculum, cutting some of it away. Several years ago we cut out 25 to 30 per cent of our curriculum. Some teachers thought the students would simply waste their time in going to the movies, or loafing, but the real result was that they did 47 per cent more reading the next year, and the use of the library increased in three years over 100 per cent. The students read more generally and broadly instead of reading only on things strictly required. Many schools have been afraid to do it, afraid the students would waste their time. But if you cannot trust the students—they are serious-minded, mature graduate students—then you should just let them take their chance and throw them when they come up for examination. Most of them will take advantage of their opportunities.—DAVID L. EDSELL, *Southern Medical Journal*, Aug., 1927.

### Department of Clinical Physiology

It is abundantly clear that dissecting-room anatomy and laboratory physiology are, regarded as handymaids to medicine, unprofitable servants. Only by a continuous study "in the round" of normal men, women, and children, employ-

ing all the methods of clinical medicine, can the bounds of the normal be defined, these erratic excursions be forestalled or curtailed, and medicine be given that scientific basis, which it is so prone to boast of possessing already. To pursue such a study should be the first work of a department of clinical physiology; to check, constantly and repeatedly on an ever-widening scale the accepted standards employed in clinical medicine, to record its results and to see that its records are easily accessible to any seeker after truth. It will investigate the reactions of human beings to changes in diet and environment, to exercise and rest; it will endeavor to classify into types (and yet will be slow to do so dogmatically); it will measure, photograph, and skiagraph. It will watch for the appearance in wards and clinics of new clinical methods, signs, tests, and "instruments of precision," and especially for the postulation of abnormalities of form or function to explain familiar groups of symptoms. No less carefully will it observe the laboratory work of experimental physiologists, and it will promptly initiate control experiments on large groups of normal subjects to try out as far as may be the value of each new discovery, whether in laboratory or clinic. Of the head of the department exceptional gifts and qualifications will be required. To a capacity for clear thinking and a single-minded devotion to truth he must add educational experience of an unusual kind. He must have something more than a good working knowledge of both laboratory physiology and clinical medicine with a basis of broad culture generally denied to those who abandon too early the study of the literae humaniores for that of the physical sciences. The course of instruction in this subject might be given partly in the last months devoted to anatomy and physiology and partly during the earliest clinical appointments, supplying inspira-

tion in the first period and ballast in the second. The course should consist of demonstrations and practical work, inspection, palpation, percussion, and auscultation (but chiefly and especially inspection) of as many kinds and types of human being as can be collected in the department. Organic disease will be rigidly excluded but unusual types will be welcomed, and perhaps at the end of the course a few examples of functional disorders simulating organic disease might be shown. The student would be encouraged to appreciate and, when possible, to share, actively or passively, in the researches of the department; he would be taught how to examine the eye, nose, ear, and larynx, and would be made familiar with their normal appearances; he would learn the use of all the diagnostic instruments; he would learn to test and measure motor and sensory functions and might be taught something of the bearing of this work on research into industrial fatigue; he might be shown by slow-motion photographs something of the real functions of those muscles whose origins and insertions and "actions" he has so laboriously studied. He would learn what children look like, how they grow, and what they need in the way of food, sleep, and exercise. Finally, he would go to the wards equipped to examine his patients thoroughly and in detail (not, for example, unable to examine the ear of a child with unexplained fever because he has not yet clerked in the ear department), familiar with normal skiagraphic anatomy, familiar with the diagnostic instruments and methods he has now to use, and, best of all, familiar with some at least of the many physical and physiologic types which are classed together as "normal" man. Can it be doubted that his chances of becoming a good clinician would be vastly increased? —BATTEN, L. W.: *Lancet*. 1:1238, June 15, 1929.

### Medical History Clubs

Assuming that the pupil has acquired ways and means of looking up subjects and getting himself interested in them, a further step would be the organization of a medical history club, preferably by the students themselves under guidance of some mentor. Beginning with simple ten-minute biographical papers or extempore talks on different subjects, considerable progress can thus be made in familiarizing a class with the significance of the greater leaders, and the high spots and landmarks in the advancement of medicine. The main object of the students' medical history club should be to cover the essential landmarks in the progress of medicine in a way that might be interesting and profitable to themselves. Supplementary to these evenings, a series of lantern slides, arranged as a movie by a recent mechanical invention, can be utilized to bring out the main lines of the general subject and the special history of each important discipline and specialty, say of physiology or otology or obstetrics, at the end of the courses. This virtual review of the special subject from the historic angle (by appropriate legends) holds out a distinct advantage over the perfunctory oral lecture, since what is taken in at one ear usually goes out by the other, while whatever rivets the attention or stirs the imagination by the visualizing process is apt to stick in the mind somewhere and be retained. To prepare an effective scheme of visualization with legends, so that the essential facts in a course, say on physiology of the circulation or diseases of the nervous system, shall be reviewed and fixed in the mind by the historic milestones, implies expertise and might be a fascinating task for an expert or group of experts. Another matter which can be brought to the attention of students is the advantage of maintaining an interest in the subject through some particular hobby, such as collecting medical classics, incunabula, engravings, caricatures, medals, postage stamps, book-plates, autographs, manuscripts, autograph letters, portraits and personal mementoes of great physicians, specimens of primitive plastic anatomy

and pathology, medical amulets, talismans, scarabs, and apotropaic tokens, *ex voto* offerings, primitive remedies and other cultural illustrations of the history of medicine.—*Bull. New York Acad. of Med.* 5:747, Aug. 1929.

### Making Bibliographies

Exercises in making bibliographies of special subjects, *e. g.*, of the basic contributions on valvular diseases of the heart or of the writings of prominent contributors to medical literature, will obviously be of great value to students, for it is well that the future doctor should know how such things are to be done, even if eventually delegated to his secretary. An important phase of this kind of work is the capacity to develop, from well-arranged bibliographical lists, certain sidelights on the subject not otherwise accessible and this is particularly true of chronological arrangements of medical writings and of important events. In investigating an unexplored terrain, such as the history of acupuncture, or of town-planning or of the semeiology of an unusual disease, the surest line of approach, the most effective scaffolding, is the chronological layout, which is usually found to project from far-flung lines in the remote past, and has the additional advantage of inducing the student to familiarize himself with the commoner sources of reference. Herein, many unsuspected data may be developed, as from a photographic negative by the mere juxtaposition of successive steps in an important investigation without reference to dates.—*Bull. New York Acad. of Med.*, 5:745, Aug., 1929.

### Requirements for Medical Licensure

It is evident that in the teaching of medicine there should always be thought of future developments. The teachers must take note of every real advance and of everything that promises to be serviceable to the future practitioner. The medical curriculum can never be static. There must be constant winnowing of the material used by the teacher. Every year there must be new matter presented, more or less change of emphasis, more

or less elision. The student at graduation must have a fair comprehension of the state of medicine as it is at the time. It is thus that the teacher must prepare the student for the practice of his profession.

But while the teacher is thus occupied, the student has to think of more than preparation for practice. There are the examinations to be passed before he can obtain his degree, and the examinations to be passed before he can obtain his license. Preparation for practice and preparation for examinations are not one and the same thing, and most teachers know students whose first concern is preparation for examinations. The examination for the degree is generally regarded as the lesser of the two evils. In this the student meets men with whom he is familiar. For the license, however, he must present himself before examiners who are not all engaged in teaching, who will know him only as number such-and-such, and some of whom are very likely to value answers which include the most modern views more conservatively than his teachers would. If he be of the timid sort, he will not acquit himself before such an examiner as he would before one with whom he is acquainted. Only those who are brought into very intimate contact with students can appreciate the dread in which examinations are held, the greatness of the relief experienced when they are completed successfully, or the bitterness of the disappointment caused by failure. The stress of such an ordeal should not be lightly regarded, and the wisdom of the practice of subjecting students to a post-graduate examination under conditions which are seldom if ever more exacting, although usually more trying, than those of the University may well be questioned.

Except for graduates of other than Canadian schools there no longer exists the need for the duplication of examinations with all that that entails. I am inclined to go farther and to contend that the present system is not only unnecessarily cumbersome and burdensome, but that it is really a hindrance to med-

ical education. My feeling is that if the student were relieved of the dread of examinations by men who are not teachers, he would prepare less for examination and more for the actual practice of his profession, and that the teacher, relieved of the need of presenting possibly antiquated matter in order that the not-quite-up-to-date examiner may be satisfied, would be able to deal more thoroughly with really essential material. Perhaps, too, it would be easier for the schools to break away from the pernicious lock-step if they were not obliged to keep an eye to the requirements of provincial or other examining boards.

No medical school should be permitted to continue if it graduates men who are not reasonably well prepared to enter on the practice of medicine. The State

should exercise its control primarily on the school and only secondarily on the graduate. The school can discipline the undergraduate only; if discipline is required thereafter, the licensing body alone has jurisdiction. Moreover, there may be justification for a further test of candidates for licensure who come from foreign schools over which no Canadian state agency can have control. Consequently there is need for continuance of the several licensing bodies. But our Canadian schools can, and in my opinion should, be placed under such official supervision by the State as will ensure their proper conduct and eliminate the need for more than the regular university examinations. W. H. HATTIE, *Canadian M. Assoc. J.*, 21:214, Aug., 1929.

## Book Reviews

### Herman's Difficult Labor

By Carlton Oldfield. 7th Ed. William Wood & Company, New York. Price \$5.50.

The size and scope of this book will appeal to the student. While supplementary, in a way, to textbooks on obstetrics, its conciseness and style of expression make the perusal of its pages a pleasurable diversion rather than an arduous task. Less than two pages are devoted to the prevention of puerperal sepsis, but every word is gospel. It is good teaching.

### The Science and Practice of Surgery

By W. H. C. Romanis and Philip H. Mitchiner. 2nd Ed., 2 volumes. William Wood & Company, New York. Price \$12.00.

A second edition within a year of so large and pretentious a textbook speaks well for its worth. In spite of its size, it is a good book for the ambitious student who does not object to reading

much to gain desired knowledge. Recent contributions to surgical treatment have been included, such as the injection treatment of varicose veins; peri-arterial sympathectomy; use of bile in peritonitis, radium treatment of malignant disease. One praiseworthy change is the combining of the two indexes (one for each volume) into one—a great saving of time. The price will also appeal to the student. Teachers will find it an excellent work from which to assign subjects for study by clinical clerks.

### Practical Materia Medica

By Clayton S. Smith and Helen L. Wikoff. Lea and Febiger, Philadelphia. Price \$3.25.

The lost art of prescribing has been the topic for much discussion during recent years. It is no doubt true that young graduates in medicine are not as well trained in writing prescriptions as were the graduates of twenty-five years ago. Pharmacology has crowded therapeutics out of the curriculum, greatly to the detriment of medical practice. Diag-



nosis has superseded and almost annihilated treatment. Therefore it is encouraging and pleasurable to see issued a book like this one which aims to acquaint the medical student with old fashioned drugs that have by no means lost their power to do good. The student will do well to learn how to prescribe tinctures, fluid extracts, liquors, etc., even though he may not know how they are prepared. Nor are the later, newer additions to the long list of drugs used by physicians forgotten. Perhaps, the renaissance of therapeutics is in the offing. This little work is a promising and fortuitous omen.

### **The Autonomic Nervous System**

By Albert Kunz. Lea and Febiger, Philadelphia. Price \$7.00.

The title suggests an anatomic text, but that is really a comparatively small part of it. The relationship of this system to the organs and tissues innervated through it, are discussed fully; likewise its developmental and physiologic relationships to the cerebro-spinal nervous system, and many pathological and clinical data are presented. Students may not find it particularly interesting, but teachers will find it a great help in the preparation of material for clinical study. This nervous system is daily assuming a more conspicuous place in practice and should not be overlooked in teaching.

### **Rickets, Including Osteomalacia and Tetany**

By Alfred F. Hess. Lea and Febiger, Philadelphia. Price \$5.50.

The author's work on rickets is of such importance and so well known that it is well to have it in compact form—of convenient size and containing everything on rickets that has clinical value. While not intended to be a textbook, it will be valued—aside from the specialist and he who is interested in the nutritional phase of medical practice—by the student as an authoritative reference work which he should consult while engaged in case studies. Aside from the clinical phases, he is furnished with a carefully selected bibliography on the subject of rickets, chosen by one who is master of the subject. Medical school libraries should have this book.

### **Orthopedic Surgery**

By Sir Robert Jones and Robert W. Lovett. 2nd Ed. William Wood and Company, New York. Price \$11.00.

This seems almost like an entirely new book. So much of it has been rewritten and so many new illustrations have been added. The chapter on treatment of fractures is most commendable. It, alone, will repay the student for acquiring the book. New chapters are included on affections of tendons, muscles and fascial; peripheral nerve lesions; pyogenic affections of bones; vascular lesions of the extremities; amputations and artificial limbs. The sections on the arteries are particularly informative. The keynote of the book is restoration of function and prevention of deformities. The advice given is good. This work should do much to bring orthopedic surgery into its own, the most comprehensive branch of surgery.

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